



**DELHI UNIVERSITY
LIBRARY**

DELHI UNIVERSITY LIBRARY

Cl. No. M190XG14h73:1:N3

Ac. No. 96330

Date of release for loan

This book should be returned on or before the date last stamped below. An overdue charge of **5 Paise** will be collected for each day the book is kept overtime.

**THE BUREAU OF ENGRAVING
AND PRINTING**

**ITS HISTORY, ACTIVITIES
AND ORGANIZATION**

THE BROOKINGS INSTITUTION

The Brookings Institution—Devoted to Public Service through Research and Training in the Humanistic Sciences—was incorporated on December 8, 1927. Broadly stated, the Institution has two primary purposes: The first is to aid constructively in the development of sound national policies; and the second is to offer training of a super-graduate character to students of the social sciences. The Institution will maintain a series of coöperating institutes, equipped to carry out comprehensive and inter-related research projects.

The responsibility for the final determination of the Institution's policies and for the administration of its endowment is vested in a self-perpetuating Board of Trustees. The Trustees have, however, defined their position with reference to the scientific work of the Institution in a by-law provision reading as follows: "The primary function of the Trustees is not to express their views upon the scientific investigations conducted by any division of the Institution, but only to make it possible for such scientific work to be done under the most favorable auspices." Major responsibility for "formulating general policies and coöordinating the activities of the various divisions of the Institution" is vested in the President. The by-laws provide also that "there shall be an Advisory Council selected by the President from among the scientific staff of the Institution and representing the different divisions of the Institution."

Board of Trustees

Robert S. Brookings, Chairman	Arthur T. Hadley
Leo S. Rowe, Vice-Chairman	Ernest M. Hopkins
Edwin A. Alderman	David F. Houston
Whitefoord R. Cole	Vernon Kellogg
Frederic A. Delano	Samuel Mather
George Eastman	John C. Merriam
Raymond B. Fosdick	Harold G. Moulton
Frank J. Goodnow	John Barton Payne
Jerome D. Greene	Bolton Smith

Paul M. Warburg

Officers

Robert S. Brookings, Chairman
Leo S. Rowe, Vice-Chairman
Frederic A. Delano, Treasurer
Harold G. Moulton, President

Advisory Council (1928-29)

Charles O. Hardy	Edwin G. Nourse
Robert R. Kuczynski	Thomas Walker Page
Lewis L. Lorwin	Fred W. Powell
Leverett S. Lyon	William F. Willoughby

Director of the Institute for Government Research
William F. Willoughby

Director of the Institute of Economics
Harold G. Moulton

INSTITUTE FOR GOVERNMENT RESEARCH

SERVICE MONOGRAPHS
OF THE
UNITED STATES GOVERNMENT
No. 56

THE
BUREAU OF ENGRAVING
AND PRINTING
ITS HISTORY, ACTIVITIES
AND ORGANIZATION

BY
LAURENCE F. SCHMECKEBIER



THE JOHNS HOPKINS PRESS
BALTIMORE MARYLAND
1929

COPYRIGHT, 1929, BY
THE BROOKINGS INSTITUTION

PRINTED IN THE UNITED STATES OF AMERICA

The Lord Baltimore Press
BALTIMORE, MD., U. S. A.

FOREWORD

The first essential to efficient administration of any enterprise is full knowledge of its present make-up and operation. Without full and complete information before them, as to existing organization, personnel, plant, and methods of operation and control, neither legislators nor administrators can properly perform their functions.

The greater the work, the more varied the activities engaged in, and the more complex the organization employed, the more imperative becomes the necessity that this information shall be available—and available in such a form that it can readily be utilized.

Of all undertakings, none in the United States, and few, if any, in the world, approach in magnitude, complexity, and importance that of the national government of the United States. As President Taft expressed it in his messages to Congress of January 17, 1912, in referring to the inquiry being made under his direction into the efficiency and economy of the methods of prosecuting public business, the activities of the national government "are almost as varied as those of the entire business world. The operations of the government affect the interest of every person living within the jurisdiction of the United States. Its organization embraces stations and centers of work located in every city and in many local subdivisions of the country. Its gross expenditures amount to billions annually. Including the personnel of the military and naval establishments, more than half a million persons are required to do the work imposed by law upon the executive branch of the government.

" This vast organization has never been studied in detail as one piece of administrative mechanism. Never have the foundations been laid for a thorough consideration of the relations of all of its parts. No comprehensive effort has been made to list its multifarious activities or to group them in such a way as to present a clear picture of what the government is doing. Never has a complete description been given of the agencies through which these activi-

FOREWORD

ties are performed. At no time has the attempt been made to study all of these activities and agencies with a view to the assignment of each activity to the agency best fitted for its performance, to the avoidance of duplication of plant and work, to the integration of all administrative agencies of the government, so far as may be practicable, into a unified organization for the most effective and economical dispatch of public business."

To lay the basis for such a comprehensive study of the organization and operations of the national government as President Taft outlined, the Institute for Government Research has undertaken the preparation of a series of monographs, of which the present study is one, giving a detailed description of each of the fifty or more distinct services of the government. These studies are being vigorously prosecuted, and it is hoped that all services of the government will be covered in a comparatively brief space of time. Thereafter, revisions of the monographs will be made from time to time as need arises, to the end that they may, as far as practicable, represent current conditions.

These monographs are all prepared according to a uniform plan. They give: first, the history of the establishment and development of the service; second, its functions, described not in general terms, but by detailing its specific activities; third, its organization for the handling of these activities; fourth, the character of its plant; fifth, a compilation of, or reference to, the laws and regulations governing its operations; sixth, financial statements showing its appropriations, expenditures and other data for a period of years; and finally, a full bibliography of the sources of information, official and private, bearing on the service and its operations.

In the preparation of these monographs the Institute has kept steadily in mind the aim to produce documents that will be of direct value and assistance in the administration of public affairs. To executive officials they offer valuable tools of administration. Through them, such officers can, with a minimum of effort, inform themselves regarding the details, not only of their own services, but of others with whose facilities, activities, and methods it is desirable that they should be familiar. Under present conditions services frequently engage in activities in ignorance of the fact that the work projected has already been done, or is in process of execution by other services. Many cases exist where one service could

make effective use of the organization, plant or results of other services had they knowledge that such facilities were in existence. With the constant shifting of directing personnel that takes place in the administrative branch of the national government, the existence of means by which incoming officials may thus readily secure information regarding their own and other services is a matter of great importance.

To members of Congress the monograph should prove of no less value. At present these officials are called upon to legislate and appropriate money for services concerning whose needs and real problems they can secure but imperfect information. That the possession by each member of a set of monographs such as is here projected, prepared according to a uniform plan, will be a great aid to intelligent legislation and appropriation of funds can hardly be questioned.

To the public, finally, these monographs will give that knowledge of the organization and operations of their government which must be had if an enlightened public opinion is to be brought to bear upon the conduct of governmental affairs.

These studies are wholly descriptive in character. No attempt is made in them to subject the conditions described to criticism, nor to indicate features in respect to which changes might with advantage be made. Upon administrators themselves falls responsibility for making or proposing changes which will result in the improvement of methods of administration. The primary aim of outside agencies should be to emphasize this responsibility and facilitate its fulfillment.

While the monographs thus make no direct recommendations for improvement, they cannot fail greatly to stimulate efforts in that direction. Prepared as they are according to a uniform plan, and setting forth as they do the activities, plant, organization, personnel and laws governing the several services of the government, they will automatically, as it were, reveal, for example, the extent to which work in the same field is being performed by different services, and thus furnish the information that is essential to a consideration of the great question of the better distribution and coördination of activities among the several departments, establishments, and bureaus, and the elimination of duplication of plant, organization and work. Through them it will also be possible to

FOREWORD

subject any particular feature of the administrative work of the government to exhaustive study, to determine, for example, what facilities, in the way of laboratories and other plant and equipment, exist for the prosecution of any line of work and where those facilities are located; or what work is being done in any field of administration or research, such as the promotion, protection and regulations of the maritime interests of the country, the planning and execution of works of an engineering character, or the collection, compilation and publication of statistical data, or what differences of practice prevail in respect to organization, classification, appointment, and promotion of personnel.

To recapitulate, the monographs will serve the double purpose of furnishing an essential tool for efficient legislation, administration and popular control, and of laying the basis for critical and constructive work on the part of those upon whom responsibility for such work primarily rests.

CONTENTS

CHAPTER		PAGE
FOREWORD		V
I. HISTORY		I
Early Security Issues		2
First Years of the Bureau, 1862-1875.....		3
Expansion of Work, 1877-1887.....		5
Discontinuance of Power Printing, 1887-1889.....		6
Developments from 1895 to 1910.....		7
Resumption of Power Printing, 1912-1923.....		10
New Building, 1914.....		13
Federal Reserve System, 1914.....		14
The War Period and Thereafter.....		14
II. ACTIVITIES		16
Engraving and Printing Currency.....		17
United States notes.....		18
Gold certificates		19
Silver certificates		19
National bank currency.....		20
Federal Reserve notes.....		21
Federal Reserve bank notes.....		22
Engraving and Printing Bonds of the United States, Treasury Notes, and Certificates of Indebtedness.....		22
Engraving and Printing of Farm Loan Obligations.....		24
Engraving and Printing of Stamps.....		26
Postage stamps		26
Internal Revenue stamps.....		29
Work for Insular Governments.....		30
Miscellaneous Engraving and Printing.....		30
Maceration of Retired Currency.....		31
III. ORGANIZATION		32
Secretary of the Treasury.....		32
Office of the Director.....		32
Office of Assistant Director in Charge of Production.....		33
Engraving Division.....		33
Wetting Division		36
Plate Printing Division.....		37
Examining Division		40
Numbering Division		42
Postage Stamp Division.....		43
Surface Printing Division.....		44
Ink Making Division.....		47

CONTENTS

III. ORGANIZATION— <i>Continued</i>	PAGE
Office of Assistant Director in Charge of Administration.....	47
Orders Division	48
Accounting Division	48
Personnel Division	48
Mails and Files Division.....	49
Purchase, Storage, and Issue Division.....	49
Disbursing Division	50
Hygienic Division	51
Watch Division	51
Buildings and Grounds Division.....	51
Plate Vault Division.....	52
Federal Reserve Vault Division.....	52
Engineering and Machine Division.....	53
Garage Division	54
Press Register Division.....	54
Cafeteria	54
Planning Unit	54
Office of Mechanical Expert and Designer.....	55
 IV. PERSONNEL	 56
Appointments	56
Compensation	56
 APPENDIX	
1. Outline of Organization.....	58
2. Classification of Activities.....	78
3. Publications	80
4. Plant	81
5. Laws	82
6. Financial Statements	93
7. Bibliography	100
Index	107

THE BUREAU OF ENGRAVING AND PRINTING

ITS HISTORY, ACTIVITIES, AND ORGANIZATION

CHAPTER I

HISTORY

The Bureau of Engraving and Printing is a branch of the Treasury Department executing intaglio engraving on steel plates and the printing therefrom. It is the sole source of supply of all the major evidences of a financial character now issued by the United States or under its authority ; namely, United States bonds, certificates of indebtedness, and currency, National bank notes, and Federal Reserve notes. It is also the sole source of supply of most of the minor evidences of money ; namely, postage stamps, internal revenue stamps, customs stamps, and disbursing officers' checks.

In addition it does a certain amount of work for the governments of the insular possessions as well as miscellaneous steel engraving for the several government departments, such as transportation requests, commissions, and letters patent.

It does not print money orders, postal cards, stamped envelopes, or certain classes of coupons having a cash value and sold by the Patent Office and the Superintendent of Documents.

While the organization has the status of a bureau it is really a branch of the Office of the Secretary of the Treasury, in whom practically all controlling powers are vested by law. There have been no organic acts providing for the specific duties of the Bureau or the appointment of its officers, but both the Bureau and its directing personnel have been recognized in appropriation acts and in substantive legislation.

Early Security Issues. Up to the Civil War all the engraving work of the national government had been done by commercial houses under contract, and a part of the work was so executed for many years thereafter.

Interest-bearing Treasury notes had been issued at various times by the United States, but the first demand notes were emitted by authority of the act of July 17, 1861 (12 Stat. L., 259), which provided that each note should be signed by the First or Second Comptroller or the Register of the Treasury and countersigned by such other officer or officers as might be designated by the Secretary of the Treasury.

The work of signing the notes being too great for the officers specified¹ the act of August 5, 1861 (12 Stat. L., 313), provided that the notes should be signed by representatives of the Treasurer and of the Register of the Treasury. A force of seventy clerks was engaged in signing the notes on behalf of the officers designated.²

It was soon realized that seventy different signatures³ afforded little security against counterfeiting, and plans were considered for other methods. It was decided to engrave the signatures in facsimile, and to imprint the seal of the Treasury on the notes after they had been delivered by the engravers.⁴ This plan was given legislative approval by the act of February 25, 1862 (12 Stat. L., 346).

An officer of the Construction Branch of the Treasury, now the Office of the Supervising Architect, had proposed this plan, and was designated to carry it into execution.⁵ The plan as developed included not only the affixing of the seal, but also the trimming and separation of the notes by machinery. The notes were printed four to the sheet, and up to this time had been trimmed with shears and separated by hand.

¹ 38 Cong. 2 sess., H. ex. doc. 50, p. 3.

² The form of these notes is shown in *United States Notes*, by John Jay Knox, 2d ed., p. 91.

³ The act of July 17, 1861 (12 Stat. L., 259), provided that the notes should bear the seal of the Treasury Department; the act of August 5, 1861 (12 Stat. L., 313), specifically stated that the notes should not require the seal of the Treasury.

⁴ 38 Cong. 2 sess., H. ex. doc. 50, p. 5.

First Years of the Bureau, 1862-1875. On August 28, 1862, the new work of affixing the seal, trimming, and separating was started with one male and four female operatives in addition to the officer in charge.⁶ This was the beginning of what is now the Bureau of Engraving and Printing. By February, 1865, the personnel had grown to 527.⁷

The act of July 11, 1862 (12 Stat. L., 532), authorizing an additional issue of national currency, empowered the Secretary of the Treasury to have notes or any part thereof engraved and printed at the Treasury, to purchase machinery and materials, and to employ necessary personnel. This act became Section 3577 of the Revised Statutes, and is in force to-day. It is the basis of all the work in connection with paper money done at the Bureau of Engraving and Printing; the legal basis of all later expansion of the Bureau is found in appropriations for work to be undertaken.

Plans for the use of distinctive paper were made in 1862, and a contract was made with an inventor to manufacture this paper in the Treasury Department.⁸ This paper appears to have been manufactured in the Treasury until 1869, but it is not likely that enough was made for all issues. In 1869, the manufacture of the paper was entrusted to a commercial mill under government supervision,⁹ and this course has been followed to the present.

National bank currency was provided for in the act of February 25, 1863 (12 Stat. L., 665), which empowered the Comptroller of the Currency, under the direction of the Secretary of the Treasury, to have the notes engraved and printed.

The first notes wholly engraved and printed at the Bureau were those for the fractional currency authorized by the act of March 3, 1863 (12 Stat. L., 711). Over three million sheets of this currency, with a monetary value of over thirteen million dollars, had been printed by November 26, 1864.¹⁰ The only other work completely executed consisted of bonds and Treasury notes.

United States notes continued to be printed entirely by commercial houses in New York until 1869, when the Secretary of the

⁶ *Ibid.*, p. 6.

⁷ *Ibid.*, p. 2.

⁸ *Ibid.*, p. 78.

⁹ *Ibid.*, p. 13.

¹⁰ *Ibid.*, p. 40.

Treasury, on the recommendation of the Joint Congressional Committee on Retrenchment, divided the preparation of each class of securities between the Bureau and the commercial companies.¹⁰

Up to 1872 the internal revenue stamps had been engraved and printed entirely by the commercial companies, but in that year the work was divided between the companies and the Bureau.¹¹

From 1863 to July, 1875, all the work on the national bank notes had been done by commercial houses, except the affixing of the seals and the numbering. Beginning in September, 1875, the faces of national bank notes were printed at the Bureau and the backs by the contractors in New York.¹² This action was specifically required by the act of March 3, 1875 (18 Stat. L., 372), which provided that one or two printings should be done by commercial houses, no establishment executing more than one printing on the same note, and the final printing to be done at the Treasury Department.

The unit doing this work was first known as The First Division National Currency Bureau. As early as 1864 the officer in charge had recommended that the "division, which now exists *ex necessitate rei*, should be organized by law as a distinct and separate bureau, to be entitled, 'The Engraving and Printing Bureau of the Treasury Department.'"¹³ The reports do not indicate just when the present name was adopted, but it is so referred to in a report to the House of Representatives by the Secretary of the Treasury in January, 1869.¹⁴ The earliest annual report of the Bureau appears to be the one for 1872. The first legislative recognition of the Bureau was in the act of June 20, 1874 (18 Stat. L., 110), making appropriations for the fiscal year 1875, which carried appropriations for the salary of the Chief of the Bureau and other expenses. Previous appropriations had been for the work, with no mention of any agency other than the Secretary of the Treasury.

¹⁰ Report on the Bureau of Engraving and Printing by committee of investigation appointed by the Secretary of the Treasury, June 10, 1877, p. 16.

¹¹ Bureau of Engraving and Printing, Annual Report, 1872, p. 1.

¹² Report of committee of investigation, as above, p. 16.

¹³ *Ibid.*, p. 63.

¹⁴ 40 Cong. 3 sess., H. ex. doc. 45.

Expansion of Work, 1877-1887. While some internal revenue stamps had been printed in 1872, it was not until 1876 that legislative provision was made in the appropriation act for executing the work at the Bureau (19 Stat. L., 152). This provision had the limitation that the work should "not exceed the price paid under existing contracts." This limitation was carried up to and including the fiscal year 1882. Thereafter it was omitted; in fact, it was meaningless after the first year, as there were then no "existing contracts."

The appropriation act for the fiscal year 1878 (19 Stat. L., 353) provided that all the work on United States notes and securities should be done at the Bureau, with the proviso that the work "be done as cheaply, as perfectly, and as safely and all contracts already made shall be faithfully carried out." This act, however, did not affect the printing of national bank notes, which continued to be executed by commercial houses.

The printing of postage stamps by the Bureau was authorized for the fiscal year 1880 (20 Stat. L., 357), but this work continued to be done by private contractors until the fiscal year 1895.

Up to 1879 the work of the Bureau had been carried on in the Treasury Department Building. The increase in the work, the growth of other activities of the Department, and the fact that the building was not well adapted to manufacturing operations led to the erection of a building at Fourteenth and B Streets, SW., for the sole use of the Bureau. This is now known as the "Auditors' Building." The first unit of this building was occupied in 1879; several additions were made in later years.¹⁵

For the fiscal year 1884 provision was made for all work on national bank notes except the engraving of the face plates (22 Stat. L., 606). The appropriation for the fiscal year 1887 provided for all the engraving and printing on national bank notes

¹⁵ The appropriations for the land and original building amounted to \$363,269.20. In 1881 and 1891 appropriations were made of \$11,175 for additional land, and in 1890 of \$80,000 for the southwest wing. In 1893 and 1894 appropriations of \$63,000 were made for a new boiler plant. In 1900 appropriations were made of \$100,000 for the west wing and of \$115,000 for fireproof outbuildings. In 1902 and 1904 there was appropriated \$66,000 for additional vault facilities. From 1903 to 1905 appropriations of \$215,000 were made for additional construction. In 1908 a new building on another site was authorized (see page 13).

at the Bureau (24 Stat. L., 227), and beginning with that year all currency issued by or under authority of the United States has been engraved and printed solely at the Bureau.

As no other government establishment was qualified and equipped to execute steel plate engraving and printing, the Bureau gradually came to do a considerable amount of work for other departments for which it was compensated by a transfer of appropriation. The appropriation act for the fiscal year 1887 provided that all such repayments "for miscellaneous work authorized by law" to be performed by the Bureau should be credited to miscellaneous receipts and should not be available for expenditure by the Bureau (24 Stat. L., 227). This act is still in force, but provision is made each year for crediting to the appropriations for the Bureau the proceeds from work not embraced in the appropriations.

Discontinuance of Power Printing, 1887-1889. The appropriation act for the fiscal year 1887 contained the first provision on a matter of administration which was a subject of controversy for many years, namely, the use of power presses for plate printing.¹⁰ As a rule the Plate Printers' Union has been opposed to the use of power presses on the ground that men would be thrown out of employment and that the product would be so inferior that counterfeiting would be easier. Voluminous testimony has been taken by committees of Congress on the subject from time to time.

Printing from power operated plates was begun as early as 1878,¹¹ and by 1880 there was a unit known as the "Steam Plate Branch," which was "organized for the operation of the steam-power plate presses owned by the Bureau."¹²

The first legislation on the subject was in the appropriation act for the fiscal year 1887, which provided that the appropriation for wages of plate printers might be used for the payment of royalty on steam plate printing machines and that any part of the amount appropriated "may be used for purchasing and operating new and

¹⁰ The differences between power presses and hand presses are described on page 37.

¹¹ 50 Cong. 2 sess., S. rep. 2604, p. 1.

¹² Rules and regulations of the Bureau of Engraving and Printing, 1880, p. 43.

improved plate printing presses" (24 Stat. L., 227). These provisions were repeated in the appropriation act for the next year (24 Stat. L., 515), but the expenditure for wages was limited to twenty-six printers' assistants at steam presses, which in effect was a limitation on the number of machines to be used during that year.

The appropriation act for the fiscal year 1889 did not limit the number of assistants to twenty-six, but it provided that there should be no increase in the number of power machines (25 Stat. L., 511). In the appropriation act for the following fiscal year (1890) there was a proviso that no part of the appropriation should be used for the repair or reconstruction of power presses, the royalty to be paid was fixed by law, and it was specified that if the patentees refused to accept the royalty the presses should not be used after July 1, 1889 (25 Stat. L., 945). As the patentees refused to accept the royalty and as it was unlawful to expend money to make repairs, the use of power presses was discontinued on July 1, 1889.

Developments from 1895 to 1910. A new line of work—the manufacture of postage stamps—was undertaken by the Bureau after July 1, 1894, in accordance with a contract with the Postmaster General, the Bureau having been the lowest bidder under competitive bids. No legislation preceded this expansion, and apparently none was needed, but eight years later the Post-Office Department appropriation act of April 21, 1902 (32 Stat. L., 117), contained the provision that thereafter postage stamps might be manufactured "by the Treasury Department (Bureau of Engraving and Printing) in conformity with an agreement satisfactory to both the Postmaster General and the Secretary of the Treasury," as a result of which competitive bids were eliminated. Two years later the Post-Office Department appropriation act of June 25, 1906 (34 Stat. L., 475), provided that "no contract for the manufacture of adhesive postage stamps, special delivery stamps, or books of stamps shall be made by the Government [Post-Office Department] with any Department or Bureau of the Government below the cost of such work to the Government." The manufacture of postage stamps brought the work to essentially its present scope.

8 BUREAU OF ENGRAVING AND PRINTING

The general printing act of 1895, which regulated general type printing and not the work of the Bureau of Engraving and Printing, provided that the engraving of portraits for the volumes containing eulogies of deceased Senators, Representatives and Delegates shall be done "at the Bureau of Engraving and Printing." It is likely that this work had been done previously at the Bureau and that the legislation was merely a recognition of an existing practice.¹⁹ The act of July 1, 1916 (39 Stat. L., 275), authorized the Secretary of the Treasury to deliver the engraved plates of such portraits to the heir or legal representatives of deceased members "on such terms and conditions as he may determine."

In the appropriation act for the fiscal year 1897 (29 Stat. L., 153), the head of the Bureau was designated "Director of Bureau" instead of "Chief of Bureau," and this practice has continued. The change did not affect the duties or status of the Director in any way.

Another appropriation act for the same year (29 Stat. L., 421), contained a proviso to the effect that "all the business of the Bureau of Engraving and Printing shall be under the immediate control of the Director of said bureau, subject to the direction of the Secretary of the Treasury, and the Director of the said Bureau shall report to and be responsible directly to the Secretary of the Treasury." This proviso was repeated in the act for the fiscal year 1898 (30 Stat. L., 18), after which it was omitted. It was never permanent law, and the reasons for it are not clear. Apparently the status of the Director was the same before, during, and after the life of this provision.

Prior to July 1, 1886, expenses of the Bureau of Engraving and Printing were paid from lump sum appropriations, covering only notes, bonds, and other securities of the United States and certificates of letters patent. Other products, such as internal

¹⁹ An alternative method of obtaining these engravings was provided by a paragraph in the act of March 4, 1921 (41 Stat. L., 1431), which reads as follows:

"The illustrations to accompany bound copies of memorial addresses delivered in Congress shall be made at the Bureau of Engraving and Printing and paid for out of the appropriation for that bureau, or, in the discretion of the Joint Committee on Printing, shall hereafter be obtained elsewhere by the Public Printer and charged to the allotment for printing and binding for Congress."

revenue stamps, disbursing officers' checks, and a large variety of miscellaneous work, were charged against the appropriations for other departments and bureaus and reimbursed to the appropriation for the Bureau of Engraving and Printing. Beginning with the fiscal year 1887, the Bureau appropriations included such other products and accordingly reimbursement, if made by other departments and bureaus, for such other products was not credited to the Bureau's appropriations but was covered into the Treasury as a miscellaneous receipt. Receipts for by-products, such as pulp, waste paper, and other obsolete and waste materials, were always deposited into the Treasury as "miscellaneous receipts."

In the fiscal year 1887 the Bureau executed no work and furnished no materials to other government organizations except such items as were specified in its appropriations. Commencing with the fiscal year 1888, there were requisitioned from the Bureau by other bureaus stores which had not been provided for in the Bureau's appropriations and the cost was reimbursed to the Bureau's appropriation for "materials and miscellaneous expenses." In the fiscal year 1891 the printing of Treasury notes under the act of July 14, 1890 (26 Stat. L., 289), was commenced; in the fiscal year 1894 diplomas for the World's Columbian Exposition were printed; in the fiscal year 1895 the postage stamp work was undertaken; and in following years other work was done, the cost of all this work being credited to the Bureau's appropriations. These reimbursements were made in the belief that they were not "receipts for miscellaneous work" under the act of August 4, 1886, and that the act of 1886 required the covering into the Treasury only of receipts from miscellaneous work authorized and appropriated for by Congress. The appropriations having been made to the offices requiring the printing, it was implied that the Bureau could accept reimbursement, as it could not have done the work without funds. The reimbursements in some years amounted to more than half a million dollars.

On April 22, 1909, the Comptroller of the Treasury, on his own motion, withdrew from the files of the Auditor for the Treasury Department, for revision, accounts of the Bureau from July 1, 1908, to December 31, 1908, and as a result of such revision decided that the act approved August 4, 1886 (24 Stat. L., 227),

10 BUREAU OF ENGRAVING AND PRINTING

required that moneys received by the Bureau for miscellaneous work performed for the several departments of the government should be deposited to the credit of "miscellaneous receipts," and not to the credit of the several appropriations for the Bureau, as had been the custom theretofore.

The Comptroller's decision threatened serious embarrassment to the operations of the Bureau, as it had become a recognized practice during many years for the Bureau to perform, for the other branches of the government, work which was not covered by its annual appropriations, and to make charges therefor to reimburse its appropriations for the amounts expended for such work. To meet the objections of the Comptroller, legislation was immediately requested of Congress, and there was included in the deficiency act of August 5, 1909 (36 Stat. L., 121), the following provision:

During the fiscal year nineteen hundred and ten all proceeds derived from work performed by the Bureau of Engraving and Printing, by direction of the Secretary of the Treasury, not covered and embraced in the appropriation for said bureau for the said fiscal year, instead of being covered into the Treasury as miscellaneous receipts, as provided by the act of August fourth, eighteen hundred and eighty-six (Twenty-fourth Statutes, page two hundred and twenty-seven), be credited when received to the appropriation for said bureau for the fiscal year nineteen hundred and ten.

This proviso removed the difficulty only for the fiscal year 1910, but the same provision has been carried in each succeeding annual appropriation act.

Resumption of Power Printing, 1912-1923. As has been noted the use of power presses was discontinued in 1889, but they were again used when the postage stamp engraving and printing was taken over in 1894.²⁰ Apparently there was no opposition to their use for this purpose. In 1898 it was proposed to print the backs of currency by this method,²¹ and this resulted in the legislation in the act of July 1, 1898 (30 Stat. L., 605), which provided that thereafter all bonds, notes, and checks should be printed from hand roller presses. A year later the act of March 3, 1899 (30 Stat. L., 1082), specified that the faces of all tobacco stamps to

²⁰ Handoller v. power presses, Hearings before Senate Committee on Printing, 62d Congress on S. 4239, p. 161.

be used on packages of two pounds and upward, and of all beer, whiskey, cigar, snuff, oleomargarine, and special liquor tax stamps should be printed upon hand roller plate printing presses from engraved plates. In 1907 the provisions of the act of 1899, last mentioned, were repealed (34 Stat. L., 1310).

The legislation rested in this stage until 1912, when in connection with a bill revising the general printing law it was proposed to give the Secretary of the Treasury wide discretion regarding the use of the two kinds of presses, with the limitation that not more than one-fifth of the hand presses should be displaced each year.

This proposal aroused a vigorous protest on the part of the operatives, and extended hearings were held by the Senate Committee on Printing. Finally, a compromise was reached by the Director of the Bureau and the Plate Printers' Union.ⁿ While the general printing bill was not enacted the compromise was embodied in the appropriation act of August 24, 1912 (37 Stat. L., 430), which contained the following provision:

Hereafter the proviso of the Act of July first, eighteen hundred and ninety-eight (Thirtieth Statutes at Large, page six hundred and four), directing that all bonds, notes, and checks shall be printed on hand-roller presses shall not apply to checks, the backs and tints of all United States bonds, the backs and tints of all United States paper money, and the backs and tints of bonds and paper money issued by any of the insular possessions of the United States, any or all of which shall be printed from intaglio plates and on such plate printing presses as may be directed by the Secretary of the Treasury, said presses to be operated by plate printers, except that checks and tints may be printed by any desired process: *Provided*, That the backs of all United States paper money shall be printed from four-subject plates, and the faces of all internal-revenue stamps now printed from intaglio plates on hand-roller or power plate printing presses shall continue to be printed from intaglio plates on hand-roller or power plate printing presses, as the Secretary of the Treasury may determine, said presses to be operated by plate printers: *Provided further*, That should the Secretary of the Treasury decide to print on the aforesaid power plate printing presses any of the classes of work hereinbefore permitted to be printed on such presses, not more than one-fifth of the total number of hand-roller presses required to produce the estimated quantity of such work in any fiscal year shall be displaced in such fiscal year:

ⁿ *Ibid.*

Provided further, That the Secretary of the Treasury may, in his discretion, apply motors to hand-roller presses that are now, or may hereafter be, operated in the Bureau of Engraving and Printing, but such presses, if equipped with motors, shall be regarded as hand-roller presses within the meaning of this Act.

After the entrance of the United States in the World War it was evident that measures were necessary to increase the output, and on October 6, 1917 (40 Stat. L., 349), legislation to be in force during the duration of the war, was enacted as follows:

The Secretary of the Treasury is hereby authorized, during the continuance of the war with Germany, to have all bonds, notes, checks, or other printed papers, now or hereafter authorized to be executed by the Bureau of Engraving and Printing of the Treasury Department, printed in such manner and by whatever process and on any style of presses that he may consider suitable for the issue of such securities and other papers in the form that will properly safeguard the interests of the Government, except that such presses as are used in printing from intaglio plates shall be operated by plate printers: *Provided*, That in the execution of such work only such part of it shall be transferred from the present method of executing it as will permit of the retention in the service of such permanent plate printers as are now engaged in the execution of such work, or such temporary plate printers, similarly employed and who can qualify under civil-service regulations for permanent appointment, and all Acts or parts of Acts heretofore enacted relative to the use of power and hand presses in the printing of securities of the Government are hereby suspended and declared to be not in effect during the continuance of said war, and at the termination of the war such Acts or parts of Acts shall be in effect and force as heretofore.

As the wide discretionary power conferred on the Secretary of the Treasury by the act of 1917 expired at the end of the war and as the work of the Bureau was still heavy at that time, additional legislation was necessary. This was contained in the act of July 11, 1919 (41 Stat. L., 44), which extended the discretionary power of the Secretary to cover the period of "the emergency growing out of the war," the language of the statute being as follows:

The Secretary of the Treasury is hereby authorized, during the emergency growing out of the war with Germany, to have all bonds, notes, checks, or other printed papers now or hereafter authorized

to be executed by the Bureau of Engraving and Printing of the Treasury Department printed in such manner and by whatever plate-printing process and on any style of plate-printing presses that he may consider suitable for the issue of such securities and other papers in the form that will properly safeguard the interests of the Government, and that such presses as are used in printing from intaglio plates shall be operated by plate printers except on such work as is now being done by other processes and any similar work that may be necessary hereafter: *Provided*, That in the execution of such work only such part of it shall be transferred from the present method of executing it as will permit of the retention in the service of such permanent plate printers as are now engaged in the execution of such work, or such temporary plate printers similarly employed and who can qualify under civil-service regulations for permanent appointments; and all Acts or parts of Acts heretofore enacted relative to the use of power and hand presses in the printing of securities of the Government are hereby suspended and declared not in effect until that time, and at the termination of said emergency such Acts or parts of Acts shall be in effect and force as prior to the Act of October 6, 1917.

In the act of January 3, 1923 (42 Stat. L., 1099), the discretionary power of the Secretary of the Treasury was made permanent by the following language:

Hereafter the Secretary of the Treasury is authorized to print from plates of more than four subjects each upon power presses the fronts and backs of any paper money, bonds, or other printed matter now or hereafter authorized to be executed at the Bureau of Engraving and Printing; and the Secretary shall, in the exercise of the authority conferred upon him by this paragraph reduce the number of persons employed in the operation of plate-printing presses by not less than two hundred and eighteen. . . .

New Building, 1914. After the engraving and printing of postage stamps was undertaken in 1895, no new classes of work were undertaken, but there was a steady increase in the output due to the growth of the country. By the beginning of the present century the Bureau had outgrown the building occupied since 1880, and the act of March 3, 1907 (34 Stat. L., 1306), appropriated \$5000 for the preparation of plans for a new building. The new building was authorized by the act of May 27, 1908 (35 Stat. L., 319).

A site was selected immediately south of the old building, and the necessary land was purchased. Appropriations aggregating

\$2,929,999.60 were made for the building and vaults, and amounting to \$681,107 for equipment, furniture, and moving. The new building was occupied early in 1914, and at present houses all the units of the Bureau with the exception of the Engraving Division and the Supply Division, which have returned to the old building.

Federal Reserve System, 1914. The fiscal year 1914, in which the new building was occupied, also saw the creation of a new source of work—the engraving and printing of bank notes for the Federal Reserve system created by the act of December 23, 1913 (38 Stat. L., 251). This act did not specifically require the engraving and printing to be done at the Bureau, merely stating that the Comptroller of the Currency, under the direction of the Secretary of the Treasury, should have the plates and dies engraved and the printing executed. It was, however, a foregone conclusion that this work would be done at the Bureau, as for many years it had been recognized as the sole source of government obligations. The act specifically authorized the Secretary of the Treasury to prescribe the form of the notes. The creation of the Federal Reserve system ultimately resulted in a large increase in the work.

The War Period and Thereafter. The outbreak of war in Europe in August, 1914, was felt more quickly than the creation of the Federal Reserve system, which did not get under way until December, 1914. The first immediate effect of the war was a great increase in the emergency currency issued under the act of May 30, 1908 (35 Stat. L., 546). The second increment of work resulted from the emergency internal revenue taxes imposed by the act of October 22, 1914 (38 Stat. L., 745). Many of these taxes were new ones requiring stamps not previously manufactured. In this work offset printing was used for revenue stamps for the first time.

This increase in work was accompanied by difficulty in obtaining raw material, particularly aniline colors which were used in the manufacture of ink and which had been received from Germany. Later the scarcity of linen necessitated a change in the quality of the currency paper, the linen content of the paper being successively reduced, until finally a one hundred per cent cotton paper was being used. The variations in the quality of the paper gave rise to technical difficulties in the proper wetting and printing and

there resulted undue spoilage until changed methods of handling were devised.

After the United States declared war in 1917, operation difficulties increased. The volume of work was greatly increased by reason of the bond issues, the increase in currency, and the changes in stamp taxes. The rapid expansion of the force and the labor shortage resulted in the employment of inexperienced operatives and gave rise to an abnormal turnover. Thus in the fiscal year 1918 there were 3961 appointments and 3097 separations, out of an average of 6583 employees for the year, with a maximum of 8432 employees on the rolls.

In 1917, owing to the pressure of work, a contract was made with a commercial establishment to prepare offset plates and to print therefrom documentary stamps and postal savings certificates under the supervision of employees of the Bureau. This was the only time within recent years that any stamps have been printed outside the Bureau.

Nor did the cessation of hostilities end the difficulty. During the war temporary bonds had been printed with only a few coupons, and it was necessary to replace these with complete bonds. The inflation period after the war called for an increased volume of Federal Reserve currency.

In the fiscal year 1919 the appointments numbered 1635 and the separations 2286, and in the fiscal year 1920 there were 1773 appointments and 1656 separations. In the fiscal years 1921 to 1923 the force was gradually reduced and for several years has been stabilized at about five thousand. In the fiscal year 1927 there were 263 appointments and 301 separations.

CHAPTER II

ACTIVITIES

The Bureau of Engraving and Printing is a unifunctional organization engaged in the manufacture of currency, bonds, stamps, and other evidences of money, as well as of some forms, such as prescriptions for intoxicating liquor, which it is desirable should be distinctive and not easily counterfeited. As ancillaries to its major purpose it manufactures for its own use ink, glue, and rollers for the presses; it also rebuilds or constructs considerable machinery. Incidental to its manufacturing activities it stores and ships postage and internal revenue stamps. It also stores Federal Reserve notes in its vaults, but the storage and shipping of these notes is not strictly a Bureau activity, as the vault is under joint control.

As the Bureau is essentially a manufacturing plant, serving other units of the government, the volume of its several products is determined by the various offices utilizing its output, subject to the limitations imposed by law.

Figures given in the following pages are for the output of the Bureau, and do not indicate issues, as a portion is kept in stock by the several offices and issued as needed. All products are delivered to the several offices when complete, except Federal Reserve notes, postage stamps, and internal revenue stamps.

The Bureau does not print money orders, postal cards, stamped envelopes, or the coupons used by the Office of Superintendent of Documents and the Patent Office. All of these, except the stamped envelopes, are printed at the Government Printing Office. Section 3916 of the Revised Statutes authorizes the Postmaster General to issue postal cards, but the law is silent regarding how the cards shall be printed. Prior to the fiscal year 1910 they were printed at commercial plants under contract; beginning with that year they have been printed at the Government Printing Office.

Section 4034 of the Revised Statutes provides that money order forms shall be furnished by the Postmaster General, but contains no provision regulating the printing. Prior to the fiscal year 1908 they were manufactured by commercial houses under contract; beginning with that year they have been printed at the Government Printing Office.

Stamped envelopes are manufactured by a commercial house under a four-year contract with the Postmaster General authorized by the act of June 26, 1906 (34 Stat. L., 476), the stamp being impressed when the envelope is made.

Coupons sold by the Office of the Superintendent of Documents and the Patent Office are used to facilitate remittances for government publications and printed copies of patents. As they are printed from type they fall into the same general class as other work required to be done at the Government Printing Office.

As the Bureau is so nearly unifunctional, the discussion of the activities will be along the lines of the various products.

Engraving and Printing Currency. All currency is designed in the Bureau, the first step being the execution of a detailed drawing of the note. Authority to fix the design and to determine the size of notes is vested in the Secretary of the Treasury. After the design is approved the steel engraving is executed and plates from which the note is printed are prepared.¹

The currency now being printed is as follows:

United States notes
Gold certificates
Silver certificates
National bank notes
Federal Reserve notes

Some Treasury notes of 1890 issued under the act of July 14, 1890 (26 Stat. L., 289), and some Federal Reserve Bank notes issued under the act of December 23, 1913, are still outstanding, but no more are being issued.

All paper for currency contains distinctive marks and is manufactured by a commercial mill under the supervision of officers designated by the Secretary of the Treasury. It is paid for from

¹For a general description of process of engraving, see page 34.

18 BUREAU OF ENGRAVING AND PRINTING

a separate appropriation made to the Treasury Department, and is delivered to the Bureau as needed.

The printing of currency, with the exception of the numbering and the affixing of the seal, is done from intaglio engraved steel plates.*

United States Notes. The United States notes are the green-backs or legal tender notes issued under authority of the acts of February 25, 1862 (12 Stat. L., 345), July 11, 1862 (12 Stat. L., 532), and March 3, 1863 (12 Stat. L., 710). These were retired from time to time until 1878, when the act of May 31 (20 Stat. L., 87), provided that no further retirement should be made, but that the notes should be reissued. Since that date the amount outstanding has been \$346,681,016.

The denominations of these notes outstanding are as follows: \$1, \$2, \$5, \$10, \$20, \$50, \$100, \$500, \$1000, and \$10,000. A \$5000-dollar note was also issued but none is outstanding at present.

As there are no new issues in this series, new notes are required only to replace worn and mutilated currency. During the fiscal year 1927 there were printed 54,100,000 five-dollar notes and 42,200,000 two-dollar notes, making a total of 96,300,000 notes with a face value of \$354,900,000. These were all printed four to a sheet, the number of sheets being 24,075,000.

Originally the notes were engraved and printed at commercial houses; later the work was divided between the Bureau and private establishments; they have been printed completely at the Bureau since 1878. The quantity needed is determined by the Secretary of the Treasury, but the annual appropriation act for the Bureau provides for a maximum number of sheets of all United States and national bank currency, the quantity for the fiscal year 1929 being 205,000,000 sheets, four notes to the sheet. Notes are printed four, eight, and twelve to the sheet. This is really a limitation on the Treasury offices concerned with the issue of money, as the Bureau prints only on their order.

With the exception of paper the entire cost of engraving and printing these notes is charged to the appropriations for the Bureau.

* For description of processes, see following pages: Engraving, page 34; plate printing, page 37; numbering and affixing seal, page 42.

The cost of these notes, exclusive of paper, was \$631,728 during the fiscal year 1927.

Gold Certificates. Gold certificates are issued against deposits of gold coin or bullion, being first authorized in 1863 (12 Stat. L., 711; 22 Stat. L., 165). The amount outstanding on July 1, 1927, was \$1,672,541,159. They are issued in denominations of \$10, \$20, \$50, \$100, \$500, \$1000, \$5000, and \$10,000. During the fiscal year 1927 the quantity printed was as follows:

Output of Gold Certificates, Fiscal Year 1927

Denomination	Number of notes	Value
\$10.....	36,400,000	\$364,000,000
20.....	17,148,000	342,960,000
50.....	1,460,000	73,000,000
100.....	600,000	60,000,000
500.....	52,000	26,000,000
1000.....	40,000	40,000,000
Total.....	55,700,000	\$905,960,000

These were all printed four to a sheet, the number of sheets being 13,925,000.

These notes were first engraved and printed by commercial houses; they were completely executed by the Bureau for the first time in 1878.

The quantity needed is determined by the Secretary of the Treasury, subject to the annual limitation given for United States notes. In the fiscal year 1927 the cost of engraving and printing, with the exception of paper, was \$365,392, which is charged to the appropriations made to the Bureau.

Silver Certificates. Silver certificates are issued against deposits of silver dollars (20 Stat. L., 26; 24 Stat. L., 515; 31 Stat. L., 47), the first authority being the act of February 28, 1878. At present issues may be made in denominations of \$1, \$2, \$5, \$10, \$20, \$50, and \$100, but there are outstanding some notes of \$500 and \$1000. The total amount outstanding on July 1, 1927, was \$472,406,063. During the fiscal year 1927 there were printed 613,000,000 one-dollar notes in this series.

These notes have always been completely printed at the Bureau. The volume to be printed is controlled by the Treasury Department, subject to the general limitation referred to on a preceding page applicable to United States and national bank currency. In the fiscal year 1927 the cost of these notes, with the exception of paper, was \$4,021,280, which is charged to the appropriation made to the Bureau.

National Bank Currency. National bank notes were originally authorized by the act of June 3, 1864 (13 Stat. L., 99), although the present authority is based on the acts March 14, 1900 (31 Stat. L., 49), and October 5, 1917 (40 Stat. L., 342). They may be issued in denominations of \$1, \$2, \$5, \$10, \$20, \$50, \$100, \$500, and \$1000. At present only a few \$1, \$2, \$500, and \$1000 notes are outstanding, and the issues are mainly for \$5, \$10, \$20, \$50, and \$100.

During the fiscal year 1927 national bank notes were printed as follows:

Output of National Bank Currency, Fiscal Year 1927

Denomination	Number of notes	Value
\$5.....	28,211,428	\$141,057,140
10.....	22,256,136	222,561,360
20.....	6,232,452	124,649,040
50.....	224,976	11,248,800
100.....	74,992	7,499,200
Total.....	56,999,984	\$507,015,540

As these were printed four to a sheet, the number of sheets printed was 14,249,996.

Originally these notes were engraved and printed at commercial houses, but they have been completely executed at the Bureau since 1888.

The cost of engraving of the face plates of these notes is repaid to the Bureau by the banks through the Office of the Comptroller of the Currency. During the fiscal year 1927 such repayments amounted to \$61,612. Section 5173 of the Revised Statutes as

amended provides that all expenses in connection with procuring the notes shall be paid from the semi-annual tax of one-quarter of one per cent on the average amount of notes in circulation (31 Stat. L., 49). For some years, however, the money has been appropriated directly to the Bureau for printing United States and national bank currency. During the fiscal year 1927 the sum expended for printing national bank notes was \$693,496.31, exclusive of the cost of paper and plates; the net income to the government from the tax on national banks after deducting the amount carried in appropriations was \$2,199,112.55.

The quantity of notes and the denominations are determined by the demands of the banks, but the aggregate number of sheets of United States and national bank currency that may be printed in any year is limited by each appropriation act.

Federal Reserve Notes. Notes issued by the Federal Reserve banks are authorized by the act of December 23, 1917 (38 Stat. L., 265). They may be issued in denominations of \$5, \$10, \$20, \$50, \$100, \$500, \$1000, \$5000 and \$10,000 (40 Stat. L., 970). During the fiscal year 1927 the number printed was as follows:

Output of Federal Reserve Notes, Fiscal Year 1927

Denomination	Number of notes	Face value
\$5.....	95,100,000	\$475,500,000
10.....	52,700,000	527,000,000
20.....	20,300,000	406,000,000
50.....	1,688,000	84,400,000
100.....	520,000	52,000,000
500.....	24,000	12,000,000
1000.....	8,000	8,000,000
Total.....	170,340,000	\$1,564,900,000

These were printed four to a sheet, the total number of impressions being 42,585,000.

Federal Reserve notes have always been printed at the Bureau, although this is not required by law, the Federal Reserve Act merely stating that the Comptroller of the Currency, under the direction of the Secretary of the Treasury, shall have the plates

engraved and the notes printed (39 Stat. L., 267; 40 Stat. L., 970). The entire expense of engraving and printing the notes is paid by the Federal Reserve banks (38 Stat. L., 267), and is credited to the appropriation for the Bureau. The cost of the notes engraved or printed during the fiscal year 1927 was \$1,558,-611, including the cost of paper. Prior to the fiscal year 1929 the Treasury Department supplied the distinctive paper, and was reimbursed by the Bureau, which in turn was repaid by the banks. Since July 1, 1928, the Bureau has made payment for the paper directly to the contractor.

The number to be printed is determined by the Federal Reserve Board. As the volume of Federal Reserve currency fluctuates, it is necessary to keep a large stock on hand before issue. This reserve stock is kept in the vaults of the Bureau until it is shipped to the several banks. The storage of the money is not, strictly speaking, a Bureau activity. The law requires that the stock be kept in the Treasury, a subtreasury, or a mint until delivered to the banks (38 Stat. L., 267). The storage is made at the Bureau as a branch of the Treasury Department, the vault being under the joint control of a representative of the Secretary of the Treasury, of the Director of the Bureau, and of the Federal Reserve Board.

Federal Reserve Bank Notes. Federal Reserve bank notes, which are essentially of the same character as national bank notes, are issued by authority of the act of December 23, 1913 (38 Stat. L., 268). The issuing of these notes has been discontinued, and none was printed during the fiscal year 1927. The entire amount outstanding on June 30, 1927, was \$4,854,238.

Engraving and Printing Bonds of the United States, Treasury Notes, and Certificates of Indebtedness. The only essential distinction between United States bonds, Treasury notes, and certificates of indebtedness is the length of time for which they run. Bonds generally are payable at the end of a long period, Treasury notes generally run for five years, while certificates of indebtedness are generally due at the end of six, nine, or twelve months. All three series are alike in that they are evidences of the public

debt. Other evidences of the public debt have been issued from time to time, but these are the only ones that are current.

Bonds are issued in both registered and coupon form, but Treasury notes and certificates of indebtedness are generally issued

Output of Bonds, Fiscal Year 1927

Class	Denomination	Number of bonds	Face value
Pre-war bonds			
2 per cent registered canals, 1930...	\$1,000	1,000	\$1,000,000
do.	10,000	1,000	10,000,000
2 per cent registered Panama Canal loan, 1906-36	1,000	1,000	1,000,000
do.	10,000	500	5,000,000
Postal Savings Bonds	20 ^a	213	4,260
do.	100 ^a	850	85,000
do.	500	1,767	883,500
		6,330	17,972,760
Liberty bonds			
do.	100 ^b	76,900	7,690,000
do.	500 ^a	59,400	29,700,000
do.	1,000	59,600	59,600,000
do.	5,000	5,000	25,000,000
do.	10,000	70,900	709,000,000
		277,800	890,990,000
Post War bonds			
Treasury bonds			
do.	50 ^d	68,400	3,420,000
do.	100 ^d	95,500	9,550,000
do.	500 ^d	66,200	33,100,000
do.	1,000	278,000	278,000,000
do.	5,000 ^d	26,000	130,000,000
do.	10,000 ^a	37,200	372,000,000
do.	50,000	1,000	50,000,000
do.	100,000 ^d	5,200	520,000,000
		577,500	1,396,070,000
Treasury notes			
do.	50	34,000	1,700,000
do.	100	75,000	7,500,000
do.	500	50,000	25,000,000
do.	1,000	222,000	222,000,000
do.	5,000	35,000	175,000,000
do.	10,000	85,000	850,000,000
do.	100,000	12,100	1,210,000,000
		513,100	2,491,200,000
Certificates of indebtedness			
do.	500 ^c	29,000	14,500,000
do.	1,000 ^d	101,000	101,000,000
do.	5,000 ^d	32,000	160,000,000
do.	10,000 ^d	60,000	600,000,000
do.	100,000 ^d	15,300	1,530,000,000
		237,300	2,405,500,000
Grand total		1,612,030	\$7,201,732,760

^a Four series.

^b Three series.

^c Five series.

^d Two series.

only in coupon form. From the standpoint of production the registered bonds are simpler, as the size is much smaller. Even when there are no new issues, the stock of bonds must be replenished,

as a new registered bond is necessary if there is a change in ownership, and new coupon bonds are required for conversion into different denominations.

These three classes of securities are printed in part from intaglio steel plates and in part from presses using electrotypes.* The essential portions of the bond containing the obligation and amounts are printed from the intaglio steel plates, while the explanatory matter regarding maturity and terms are printed on typographic presses. Certificates of indebtedness, which are generally required on short notice, are printed from steel plates in advance; they are held in stock and the series designations and conditions are printed from the type presses.

The output of bonds of the various classes during the fiscal year 1927 is shown on the preceding page.

Owing to the variations in the sizes of the bonds the number of bonds to the sheet is $\frac{2}{3}$, 1, 2, 4, and 6. The total number of sheets printed was 988,315.

The cost of printing these securities has been repaid to the appropriation of the Bureau from the appropriation to the Public Debt Service; during the fiscal year 1927 the amount repaid for engraving and printing was \$97,622.30. The cost of printing all issues is now included in the Bureau's appropriations except the cost of issues subsequent to the submission of estimates of appropriations, which will continue to be reimbursed to the Bureau's appropriations.

Engraving and Printing Farm Loan Obligations. Three classes of farm loan obligations—the Federal Farm Loan bonds, the farm loan bonds for joint stock land banks, and the collateral trust debentures of federal intermediate credit banks—are engraved and printed at the Bureau. None of these is an obligation of the United States, but all are issued under authority of federal law and under the supervision of the Federal Farm Loan Board.

These securities are engraved and printed in the same manner as United States bonds—the significant portion being printed from an intaglio steel plate and the explanatory and subordinate matter from type presses.

* See page 45.

The Federal Farm Loan bonds and the farm loan bonds for joint stock land banks are issued in a great variety of series. During the fiscal year 1927 the output of these three classes was as follows:

Output of Farm Loan Obligations, Fiscal Year 1927

Denomination	Number of bonds or debentures	Face value
Federal Farm Loan bonds		
\$25 (in 2 series)	3	\$75
40 (in 13 series)	3,072	122,880
50	10	500
100 (in 23 series)	6,596	659,660
500 (in 22 series)	6,423	3,211,500
1,000 (in 21 series)	147,722	147,722,000
5,000 (in 16 series)	4,533	22,665,000
10,000 (in 16 series)	7,832	78,320,000
50,000 (in 3 series)	945	47,250,000
100,000	8	800,000
	177,144	300,751,555
Farm loan bonds for joint stock land banks		
\$100 (in 9 series)	501	50,100
500 (in 30 series)	3,714	1,857,000
1,000 (in 67 series)	67,692	87,692,000
5,000 (in 47 series)	2,412	12,060,000
10,000 (in 40 series)	3,299	32,990,000
50,000	2	100,000
	97,620	134,749,100
Federal Intermediate Credit banks		
\$1,000 (in 2 series)	2,200	2,200,000
5,000 (in 4 series)	5,000	25,000,000
10,000 (in 4 series)	24,200	242,000,000
	31,400	269,200,000
Grand total	306,164	\$704,700,655

Federal Farm Loan bonds and bonds of joint stock land banks are issued under authority of the act of July 17, 1916 (39 Stat. L. 377), as amended April 20, 1920 (41 Stat. L., 571), March 4, 1921 (41 Stat. L., 1362), and August 13, 1921 (42 Stat. L., 159).

26 BUREAU OF ENGRAVING AND PRINTING

The Secretary of the Treasury is authorized to prepare the bonds and deliver them to the Federal Farm Loan Board (39 Stat. L., 377), which supervises their issue. The law specifically provides that the engraved plates shall remain in the custody of the Secretary of the Treasury.

The debentures of federal intermediate credit banks are authorized by the act of March 4, 1923 (42 Stat. L., 1456), which makes applicable to these securities the provisions of the Federal Farm Loan Act relating to bond issues cited above.

Repayment for work on these securities is made to the appropriations of the Bureau by the Federal Farm Loan Board, which assesses the cost to the several banks. During the fiscal year 1927 the repayments for this work were as follows:

Printing Federal Farm Loan bonds and bonds of joint stock land banks.....	\$85,351.77
Printing collateral trust debentures of federal inter- mediate credit banks.....	2,936.80
Engraving plates for consolidated Federal Farm Loan bonds	17,218.33
<hr/>	
Total	\$105,506.90

Engraving and Printing of Stamps. Stamps for the Post Office Department and the Bureau of Internal Revenue are engraved and printed by the Bureau.

Postage Stamps. Postage stamps are printed from intaglio engraved steel plates. The higher denominations are printed in sheets of 400 stamps from flat bed plates in the same manner as currency, but the lower denominations are printed from rotary presses to which the paper is fed from a roll. Attached to the rotary press is a gumming machine, which applies and dries the glue. The finished stamps are then rewound on the roll, and are later perforated, and put up in books, packages, or coils. The only stamps manufactured into books are the one, one-and-a-half, and two-cent denominations. Coils are made of the one, one-and-a-half, two, three, four, five, and ten-cent stamps. Precanceling, which requires the over printing of a canceling line and the name of the post office, is done when ordered. Some stamps are both precanceled and put up in coils.

ACTIVITIES

27

The output of postage stamps during the fiscal year 1927 was as follows:

Output of Postage Stamps, Fiscal Year 1927

Denomination	Number	Value
Ordinary stamps		
1 cent	184,196,300	\$1,841,963.00
1½ cent	1,427,033,200	21,405,498.00
2 cent	11,746,476,480	234,929,529.60
3 cent	303,751,600	9,112,548.00
4 cent	289,124,000	11,564,960.00
5 cent	236,282,100	11,814,150.00
6 cent	146,402,500	8,748,150.00
7 cent	116,684,300	8,167,901.00
8 cent	173,209,200	13,856,736.00
9 cent	85,424,100	7,688,169.00
10 cent	305,216,500	30,521,650.00
11 cent	39,552,100	4,350,731.00
12 cent	51,150,500	6,138,060.00
13 cent	18,742,800	2,436,564.00
14 cent	18,523,000	2,593,220.00
15 cent	85,262,300	12,789,345.00
17 cent	17,663,000	3,002,710.00
20 cent	140,452,500	28,090,500.00
25 cent	13,062,400	3,265,600.00
30 cent	36,738,500	11,021,550.00
50 cent	27,522,700	13,761,350.00
1 dollar	3,683,860	3,583,860.00
2 dollar	169,370	338,740.00
5 dollar	25,590	127,950.00
	15,466,348,900	451,251,389,60
Air mail		
6 cent	79,099	4,745.94
8 cent	712,300	56,984.00
10 cent regular.....	10,769,200	1,076,920.00
10 cent Lindbergh.....	5,707,400	570,740.00
15 cent	2,370,500	355,575.00
16 cent	400,600	64,096.00
20 cent	4,194,500	838,900.00
24 cent	410,300	98,472.00
	24,643,899	3,066,432.94

Output of Postage Stamps, Fiscal Year 1927—Continued

Denomination	Number	Value
Special 2 cent stamps (2 series) .. .	103,497,435	2,069,948.70
Special delivery		
10 cent .. .	60,535,300	6,053,530.00
15 cent .. .	3,904,400	585,660.00
20 cent .. .	866,200	173,240.00
	65,305,900	6,812,430.00
Special handling—25 cent.....	2,558,800	639,700.00
Postage due		
1 cent .. .	16,402,500	164,025.00
1½ cent .. .	3,626,300	54,394.50
2 cent .. .	48,420,700	968,414.00
3 cent .. .	4,049,100	121,473.00
5 cent .. .	6,776,900	338,845.00
10 cent .. .	6,530,000	653,000.00
30 cent .. .	591,600	177,480.00
50 cent .. .	2,097,700	1,048,850.00
	88,494,800	3,526,481.50
Ordinary stamps surcharged Canal Zone (6 denominations) .. .	3,420,000	106,400.00
Grand total .. .	15,754,269,734	\$467,472,780.24

Stamps were put up in books, in coils, precanceled, and pre-canceled in coils to the following amounts:

Stamps in books.....	935,439,480
Stamps in coils.....	2,781,523,500
Stamps precanceled .. .	966,420,000
Stamps precanceled in coils.....	370,117,500

Finished stamps are stored at the Bureau and are packed and shipped to post-offices on the request of the Post Office Department. Shipments are made in large quantities to a limited number of central accounting post-offices, which redistribute to the smaller offices.

Postage stamps have been printed by the Bureau since the fiscal year 1895, the work having been done by commercial houses prior to that time. There is no provision of law requiring the work

to be executed at the Bureau, but the act of April 1, 1902 (32 Stat. L., 117), provides that it may do the work by agreement, in effect eliminating competition with private firms. The act of June 26, 1906 (34 Stat. L., 475), provides that no contract shall be made below the cost of the work.

The appropriations of the Bureau are reimbursed from the appropriation of the Post Office Department for the expense of manufacturing stamps, the amount paid for stamps during the fiscal year 1927 being \$1,350,607.64.

Internal Revenue Stamps. The main classes of internal revenue stamps are those used for the taxes on cigars, cigarettes, snuff, and smoking tobacco. Less important issues are those for playing cards, oleomargarine, renovated butter, distilled spirits, and mixed flour. These stamps are engraved on steel; a small percentage is printed directly from steel plates on rotary presses, but the bulk is printed indirectly from zinc plates on offset presses. Owing to frequent changes in the method of internal taxation, many of the stamps already in stock are overprinted in order to meet changed conditions.

Only a small percentage of internal revenue stamps is gummed, the tobacco stamps in general being pasted on the packages by the cigar manufacturer.

The output of internal revenue stamps during the fiscal year 1927 was as follows:

Output of Internal Revenue Stamps, Fiscal Year 1927

Cigars	143,582,520
Cigarettes	4,815,078,300
Snuff	362,326,013
Tobacco	2,060,880,850
Overprints	171,737,806
Playing cards	50,752,400
Oleomargarine	15,215,800
Narcotics	10,925,650
Documentary	4,770,132
All other	3,043,537
	<hr/>
	7,638,308,008

Internal revenue stamps have been printed by the Bureau since 1877. In the early years the appropriation was made to the Commissioner of Internal Revenue, but for some time the cost of these stamps has been paid from the appropriations to the Bureau.

During the fiscal year 1927 the amount expended for this purpose was \$703,547.32. Each appropriation act fixes a maximum number of sheets to be delivered during the year, the limit for the fiscal year 1929 being 92,404,974.

These stamps are stored at the Bureau until needed, shipments being made to collectors of internal revenue on the order of the Commissioner of Internal Revenue.

Work for Insular Governments. Various papers are engraved and printed for the governments of Porto Rico and the Philippine Islands, the classes executed during the fiscal year 1927 being as follows:

Philippine Islands	
Postage stamps	56,067,000
Postal Savings stamps.....	362,100
Postal cards	508,000
Bonds	9,250
Checks	64,000
Internal revenue stamps.....	8,752,400
Treasury certificates	5,100,000
Porto Rico	
Bonds	3,000
Internal revenue stamps.....	74,372,900

The cost of this work is repaid to the appropriations for the Bureau, the total amount repaid during the fiscal year 1927 being \$48,064.20 by the government of the Philippine Islands and \$8,748.85 by the government of Porto Rico.

Miscellaneous Engraving and Printing. What is here called for convenience "miscellaneous engraving and printing" includes checks used by disbursing officers, commissions indicating appointment to office, requests entitling government employees to transportation when traveling on official business, certificates of various kinds, and liquor permits and prescriptions.

These are issued in a variety of sizes and are prepared by different processes. Important commissions are large single sheets printed from intaglio steel plates in the same manner as bank notes. Most of the miscellaneous work is approximately of the same size as ordinary checks and is printed from offset presses. For such products the work includes numbering, assembling in book

form and stitching, and, in the case of transportation requests and liquor permits, the collation and binding of duplicates.

The number printed during the fiscal year 1927 was as follows:

Checks	33,722,685
Drafts	31,000
Commissions	54,127
Certificates	3,357,283
Transportation requests	1,477,475
Liquor permits and prescriptions.....	14,392,100
Other	863,221
 Total	 53,897,891

The cost of some of this work is repaid to the appropriations of the Bureau from the appropriations to the several departments, but the greater part is charged directly to the appropriations for the Bureau. The appropriation act each year sets a definite limitation, the maximum for the fiscal year 1929 being 2,494,167 sheets of withdrawal permits, 674,000 sheets of opium orders and special tax stamps required by the narcotic act of 1914, and 7,555,043 "sheets of checks, drafts, and miscellaneous work."

Maceration of Retired Currency. Prior to 1874 the method of destroying retired currency was left to the discretion of the Secretary of the Treasury (Rev. Stat., Section 3581), and it appears that the notes were burned. The act of June 23, 1874 (18 Stat. L., 206), permitted retired notes and obligations to be destroyed by maceration, and the pulp resulting from maceration to be disposed of under the direction of the Secretary of the Treasury. The act is permissive and not mandatory.

For some years the maceration has been done at the Bureau, and the pulp has been sold. A very small percentage of it is used for the manufacture of souvenirs which are sold in the city of Washington. During the fiscal year 1927 there were sold by the Bureau 6,331,490 pounds of wet pulp for \$32,923.28.

CHAPTER III

ORGANIZATION

Secretary of the Treasury. The ultimate source of administrative authority over the Bureau of Engraving and Printing is the Secretary of the Treasury, Bureau matters being handled in the office of the Fiscal Assistant Secretary, who also has general supervision over the Office of Comptroller of the Currency, the Bureau of Internal Revenue, the Bureau of the Mint, the Secret Service, and the Disbursing Clerk. Between the Fiscal Assistant Secretary and the Secretary is the Under Secretary, who acts as Secretary in the absence of that officer.

The Secretary and the Assistant Secretary deal only with major questions of policy.

Office of the Director. The immediate supervision of the operations of the Bureau is vested in the Director. Reporting immediately to him are the Assistant Director in Charge of Production, the Assistant Director in Charge of Administration, the Planning Unit, and the Office of the Mechanical Expert and Designer.

An essential feature of all the units of the Bureau is the system of checks on blank paper, spoiled sheets, proofs, partly finished work, and finished work. Sheets are counted not only when passing from one division to another, but between separate operations within the same unit. All blank paper and partly finished work are issued in small lots, so that the count is facilitated and every sheet may be accounted for at the close of each day. At night all paper and partly finished work are returned to the vaults, and all presses are locked. In addition each press contains a register which records the impressions, the registers being read by a force independent of the producing unit. In the description of the several units on the following pages no further reference is made to the counting, which is done at every stage of the work. The discussion of processes is likewise confined to the essential features which affect the organization.

An independent audit of all securities is made by a corps of auditors from the Division of Public Debt Accounts and Audit of the Public Debt Service of the Treasury Department. The stock of money in the Federal Reserve vault is audited annually by a committee appointed by the Secretary of the Treasury.

The engraved stock of dies, rolls, plates, and other pieces is carefully inventoried annually by a committee appointed by the Secretary of the Treasury, and it annually supervises the destruction of all engraved stock which during the year has become obsolete or worn out. A detailed report is made to the Secretary of the Treasury.

Office of Assistant Director in Charge of Production. The office of the Assistant Director in charge of production has general supervision of the work of the following divisions:

Engraving	Postage Stamp
Wetting	Surface Printing
Plate Printing	Numbering
Examining	Ink Making

Engraving Division. The initial work in the production of papers printed from intaglio steel plates is done in the Engraving Division, which takes no part in current production except to repair plates that are on the press. After a plate is engraved it may remain in the vault for some time before it is used on the presses, and, conversely, plates are used for printing on which the Engraving Division has done no work for some time.

The Engraving Division is divided into the following sections in which the detailed work is done:

Clerical	Machine
Designing	Photolithographic
Engraving	Steel Stock Cage
Transferring	Stock Distributors
Electrolytic	Pantograph
Plate Cleaning	Hammering
Proving	Plate Haulers
Hardening	

During the fiscal year 1927 the total cost for labor employed and material used was \$638,379.36. In October, 1928, it had a total personnel of 198.

The Clerical Section prepares the work slips for all operations in the Division, maintains a record of all work completed, computes the cost of all special work, and keeps the time and work reports of all employees. In October, 1928, it consisted of a Chief Clerk and eleven clerks.

In the case of a new note, bond, or stamp, the work begins in the Designing Section, which makes a complete sketch to show the appearance of the new product. The ultimate authority for the approval of designs does not rest in the Bureau, but in the Secretary of the Treasury or other officers having charge of the work for which the new issue is to be used. As a matter of fact, the design is generally entirely the work of the Bureau, except in the case of postage stamps, for which a general outline of what is desired is submitted by the Post Office Department. The detailed drawing of the designs is always made in the Bureau. Subjects are designed with a view to economy in production. The reduction in the size of the currency is now being made with that in view.

After the design is approved the next step is the engraving of the original die, which is done in the Engraving Section. The engraving is done on a flat soft steel plate by two methods—by hand for portraits, pictures, and lettering, and by a geometric lathe for the scroll work around the edges. The hand work is done by two groups of engravers, one specializing in script and square lettering and the other making the portraits and pictorial representations.

A note is not engraved in its entirety in the original engraving, as one piece of steel will contain the picture, another piece the lettering, and a third piece the scroll work done on the geometric lathe. Thus, it is not necessary to re-engrave the portrait or picture if the general design of the note is changed, and a portrait or picture previously used is again utilized.

When the several pieces of steel which together represent the finished product are completely engraved, including polishing, remedying defects if any, and taking of a final impression for careful inspection, they are sent to the Hardening Section for hardening. They are then sent to the Transferring Section, where the entire design is transferred to a cylindrical piece of soft steel known as the roll. The roll is then hardened and returned to the

Transferring Section and the engraving is ready to be transferred to the final plate.

The final plate is a sheet of soft steel varying in size according to the subject matter. The plates for national bank notes are $9 \times 14\frac{1}{2}$ inches, and print four notes, those of existing currency are $15\frac{1}{2} \times 17\frac{1}{2}$ inches and print eight notes, those of the new currency are $15\frac{1}{2} \times 18\frac{3}{8}$ inches and print twelve notes, while those for postage stamps are $19\frac{1}{2} \times 21$ inches and print four hundred ordinary sized stamps.

In making the final plate the hardened roll is placed in a machine and rocked over the flat sheet of soft steel until all the lines are sharply reproduced. As only one roll is made from each original engraving, it is necessary to make four hundred transfers in the preparation of a plate printing that number of stamps.

If more than one note or stamp are on a plate, exact allowance must be made for the margin and for the space for cutting or perforating.

The plate then goes to the Hardening Section for hardening, and to the Plate Cleaning Section for finishing. The plate is now ready for printing, and goes to the Plate Vault Division for storage until needed by the Plate Printing Division.

Plates are reproduced in the Electrolytic Section through the electrodeposition of nickel and copper. This process involves the making of a relief plate from the original intaglio plate, and then the production of an intaglio plate from the relief plate. When plates are reproduced by the electrolytic method the original engraved plate is not used for printing.

After the electro plate is made chromium is deposited to the thickness of two ten-thousandths of an inch in order to give a harder surface.

The Machine Section curves the plates that are to be used on the rotary presses.¹

The Photolithographic Section makes the planograph zinc plates that are used for printing by the offset process.² These plates are used mostly for checks, internal revenue stamps, and liquor per-

¹ See page 38.

² See page 45.

36 BUREAU OF ENGRAVING AND PRINTING

mits and prescriptions. Reproduction is made by photographic process from a steel engraved plate.

Proof impressions from dies and plates, as needed to determine their condition and character, are made by the Proving Section, which also prints some short run jobs from small plates.

Machinery and tools of the Division are repaired by the Machine Section. The Steel Stock Cage Section has the custody of the steel used for making dies, rolls, and plates. The delivery of partly finished plates or dies to other units for additional work is made by the Stock Distributors Section. The Hammering Section straightens plates which may become bent. The movement of plates from one section to another is done by the Plate Haulers Section.

In the Pantograph Section, the pantograph is used for putting small serial numbers alongside check letters on plates requiring same, for numbering all stamp plates on border, for duplicating and enlarging sections of cycloid patterns, for border tints, etc.

Wetting Division. The work of the Wetting Division is the first step in printing from flat intaglio engraved plates. In this class of printing the paper must have a uniform degree of moisture in order to give good results. In the case of currency the first wetting of the paper is prior to the printing of the backs, which is the initial printing. After the printed backs are examined in the Examining Division they are again returned to the Wetting Division, where they are again wet for the printing of the faces. After the sheets are wet they are wrapped in moist cloths and allowed to stand for several days under weights in order that the moisture may be evenly distributed.

The wetting must keep pace with the plate printing because if the wet sheets are used too soon the moisture is not evenly distributed and if kept too long they are too dry.

During the fiscal year 1927, the cost of operating the division was \$232,376.72, the work handled amounting to 285,804,922 sheets. In October, 1928, the number of employees was 164.

The Division is organized into four sections as follows: Clerical, Machine Wetting, Hand Wetting, and Stock and Distribution. Administrative control and the keeping of the records constitute the duties of the Clerical Section. The bulk of the work of the Division is done in the Machine Wetting Section, only the larger

sized sheets being wet by hand. Before the sheets are issued to the two wetting sections they are in the custody of the Stock and Distribution Section, to which they are returned after being wet. This section retains them until they are issued to the several sections of the Plate Printing Division. In order to facilitate the work, sub-units of the Stock and Distribution Section are located immediately adjacent to the sections of the Plate Printing Division.

Plate Printing Division. All printing from intaglio steel and electrolytic plates is done in the Plate Printing Division, which uses three kinds of presses: (1) Hand roller presses, generally called hand power presses; (2) flat bed power presses, and (3) rotary presses.

In hand roller printing, the ink is rolled into the engraved subjects on the plate with a hand roller, the surplus ink is removed by wiping the plate with a starched rag, the plate is polished with the bare hand, and the ink is impressed³ by the plate passing under a motor driven impression roller. On this type of press, the printer is required to lift the plate, which weighs eight to nine pounds, from the press to the inking and polishing bench and then again lift it back to the press; the plates used on these presses print one side of four notes of the large currency. An assistant places the paper on the press and removes it after the sheet is printed.

In power press printing, the ink is supplied from a fountain and rolled on the plates mechanically; the surplus ink is removed by wiping paper or a starched cotton rag passing under a mechanical wiper; the plate is polished with the bare hand; and the roller making the impression is operated mechanically. This press operates with four plates, each of which prints one side of eight notes of the large currency and twelve notes of the new small currency.

The four plates pass in endless succession on each corner of the quadrangle forming the base of the press, the rate of movement and pause being regulated. While the printer is polishing one plate with his hand, one assistant is placing the paper on another plate previously polished, while the second assistant removes the

³ In the original form of the hand press, the roller was operated by a hand power wheel.

38 BUREAU OF ENGRAVING AND PRINTING

printed sheet, after which a sheet of heavy blank paper, called a tissue, is placed between the newly printed surfaces in order to prevent offsetting before the ink is dry. When the press moves, the ink is impressed on the paper from one plate while the ink is being rolled into another plate, the surplus ink is being removed from another plate, and the fourth plate passes from a position in front of the printer to a position in front of the assistant who places the paper on the plates. The printing, the inking, and the removal of the surplus ink are accomplished by a single move of the plate from one position to another.

The hand roller press has one assistant who removes the printed sheet. While the printer is removing the plate from the press and inking, wiping and polishing it, she places a tissue against the newly printed surface to prevent offsetting and gets for the next impression a blank sheet from stock kept under a damp cover rag.

The power press requires two assistants, one to place the paper on the plate and one to remove and examine the sheet after the impression is made. The power press has a larger output, as it prints from four plates one side of eight or twelve notes, while the hand press prints from one plate only one side of four notes. The assistant at the hand roller press must stand, while the assistants at the power press may sit while the press is in operation.

In the rotary press, the printing is done from two cylindrical steel intaglio plates accurately clamped to the impression rollers of the press, which are nineteen inches wide (20 stamps) and 41 inches in circumference. The movement is continuous, the paper being fed from a roll and again wound on a roll when the operation is complete. The press moistens, inks, wipes, prints, and dries the paper in a continuous operation. When used for postage stamps, an attachment to the press gums the back of stamps and dries the gum before the stamps are again wound on the roll. A plate printer and a helper are required for each rotary press.

Hand roller presses are used for national bank currency and for some other small jobs; flat bed power presses print all other paper money and the larger denominations of postage stamps; rotary presses produce some internal revenue stamps and all postage stamps of small denominations.

The average daily output of the several classes of presses is as follows:

Hand roller presses—present currency.....	200,000 notes
Power presses	
New currency	3,100,000 notes
Postage stamps of ordinary size.....	2,410,000 stamps
Rotary presses—postage stamps of ordinary size..	53,500,000 stamps

During the fiscal year 1927, the number of impressions from each type of press was as follows:

Flat bed power.....	285,804,594
Hand roller	14,981,899
Rotary	
Postage stamp work.....	55,324,193
Internal Revenue stamp work.....	3,311,594

As regards printing, internal revenue and postage stamps and money are complete when the sheets finally leave the Plate Printing Division; paper money is completely printed except for the number and the seal; for national bank and Philippine currency the numbering and affixing of the seal is done in the Surface Printing Division; for all other currency, this work is done in the Numbering Division. Other operations on paper money done in the Examining Division are sizing, pressing, and trimming. After leaving the Plate Printing Division, postage stamps are perforated and made up into sheets, books, or coils. All postage stamps printed on flat bed power presses must also be gummed. All this work is done in the Postage Stamp Division.

All additional work on bonds and internal revenue stamps is done in the Surface Printing Division.

On June 30, 1927, the equipment of the Plate Printing Division consisted of 288 large power flat bed presses, eleven small power flat bed presses, fifty-five hand roller flat bed presses, twenty large rotary presses, and eleven small rotary presses.

The Division is organized as follows:

- Printing Division Office
- Hand Roller Section
- Seven Flat Bed Power Printing Sections
- Two Rotary Printing Sections
- Textile Room
- Ink and Rag Distribution Section

The Printing Division Office exercises general administrative control. The Hand Roller section operates the hand roller presses used mostly for printing national bank notes. The seven Flat Bed Power Printing sections operate the flat bed power presses, and the two Rotary Printing sections operate the rotary presses used for postage and internal revenue stamps. There is no essential difference between the several units in each of these two groups, the division being made to facilitate administration. The Textile Room has charge of the issuance of blanket material for use on presses. The furnishing of ink and wiping rags is done by the Ink and Rag Distribution Section.

In October, 1928, the personnel of the Division consisted of eighteen supervisory employees, 421 flat bed plate printers, thirty-one rotary plate printers, 723 plate printer's assistants, and 145 miscellaneous employees, making a total of 1338. The direct labor and material cost for the fiscal year 1927 was \$2,851,612.41.

Examining Division. The primary purpose of the Examining Division is to inspect paper money for defects in the execution of the printing; in addition it sizes and presses paper money, cuts the eight-note sheets to groups of four, and trims the outer edges of the sheets of four and twelve.

When the sheets of notes are first received in the Examining Division they are placed in heated racks and thoroughly dried. The next operation is the separation of the printed sheets from the blank paper inserted to prevent offsetting. The sheets of notes are then ready to be examined for imperfections. As the backs and faces are printed separately, this operation is done twice with each sheet. The backs are printed first, dried, separated, examined, and placed in the vault until the Wetting Division is ready to moisten for the face printing. After the faces are printed the sheets are dried, separated, and the faces examined. After these operations are completed the sheets are returned to the vault, where they are seasoned prior to sizing, pressing, and trimming.

The purpose of the examination is to insure a uniform high-grade quality of paper money and at the same time to afford a check against careless work on the part of the plate printers. The work of each printer is marked, and a record kept of the spoilage. In case of undue spoilage the cost of the paper is charged to the

printer. Entire sheets which are imperfect are discarded at this stage, but single defective notes in a sheet are marked, and are discarded in the Numbering Division. Many of the imperfect sheets are salvaged by touching up small breaks or cleaning off the smears.

During the fiscal year 1927 there were examined 254,433,947 sheets, of which 736,209, or .29 per cent, were condemned.

When the examination is completed the sheets are placed in the vault and allowed to season. The next operation is sizing with a glue solution in order to give a better finish and to make the money more resistant to dirt and wear. The sizing is done by machine, which both applies the mixture and dries the sheet.

After sizing the notes are pressed in order to restore the original smoothness of the paper. The eight-note sheets are then cut in half, and the four- and twelve-note sheets are trimmed accurately on all four sides.*

Notes are complete when they leave the Examining Division, with the exception of the numbering and the affixing of the seal. For national bank notes and Philippine currency this work is done in the Surface Printing Division, and for all other notes in the Numbering Division.

The Examining Division is organized into the following sections:

Clerical	Sizing
Wet Counting and Tissue Separating	Plater Pressing
Drying	Hydraulic Pressing
Back Examining	Trimming
Face Examining	Vaults

The Clerical Section is an administrative one, exercising control and keeping records. The Wet Counting and Tissue Separating Section counts the sheets of notes and separates the printed sheets from the paper inserted to prevent offset. The drying rooms are in charge of the Drying Section. The inspection of the work is done in the Back Examining and Face Examining Sections, whose names describe their respective duties. Sizing is done in the Sizing Section. Two sections—Plater Pressing and Hydraulic Pressing—

* As this is written the manufacture of small notes has progressed to the point where the twelve-note sheet has been printed on both backs and faces and work has been started on the final trimming.

look after the pressing of the notes. The mechanical difference between the work of these sections is that in the Plater Pressing Section the pressure is applied by rollers and gives a glossy finish, while in the Hydraulic Pressing Section it is applied by vertical movement of the press and gives a dull finish. As regards classes of work the smaller sheets are pressed in the Plater Pressing Section, while the work on the large sheets is done in the Hydraulic Pressing Section. The trimming is done in the Trimming Section, while the Vaults Section has the custody of all sheets in the Division, except those in the driers and those in actual process of manufacture.

In October, 1928, the number of employees in the Examining Division was 895; during the fiscal year 1927 the direct labor and material cost of operating the Division was \$1,328,262.61.

On June 30, 1927, the equipment consisted of the following:

265 Electric drying units	4 Plater presses
130 Trimming machines	1 Cancelling machine
20 Sizing machines	1 Conveyor machine
6 Hydraulic presses	1 Electric motor truck

Numbering Division. On all paper money except national bank notes and Philippine currency the final work—numbering, affixing of the seal, and banding—is done in the Numbering Division. When the notes leave this Division they are complete in every respect.

Notes are received in this Division in sheets of four. They are fed automatically in sheets to the machines, which print the numbers in two places, affix the seal, and, on some notes, such as the silver certificates, print the denomination number. On recent notes the blue printing is the work of the Numbering Division. As the notes are fed in sheets of four, each machine numbers in four independent series. The notes are cut apart by the machine, and come out in four piles of one hundred notes each with consecutive numbers.

The small currency will be numbered and sealed on new machines in sheets of twelve notes.

The sheets of four notes contain some defective notes which have been marked by the examiners in the Examining Division. As the machines are equipped to handle sheets of four only, these defective notes are numbered and the seal is affixed. All notes

coming from the machines are counted and examined, and defective notes are withdrawn and a note with a starred number is substituted.

Paper bands are placed around each package of one hundred notes. These are assembled in packages of four thousand notes; the package is then compressed, and is fastened with two steel bands, the ends of which are welded. These packages are then wrapped and paper seals affixed.

From this Division Federal Reserve notes move to the Federal Reserve vault in the Bureau, and all other notes are taken to the Treasury Department.

The Numbering Division is organized into the following sections:

Clerical	Packing
Numbering, Sealing, Examining and Separating	Stock Exchange Vault and Delivery
Banding	

The Clerical Section exercises administrative control over the work. The printing of the numbers and of the seal, the cutting apart of the notes, the examining, and the final counting are done in the Numbering, Sealing, Examining and Separating Section, the printing of the number and seal and the cutting being machine operations. The Banding Section compresses the notes, applies the metal bands, and welds the bands. The wrapping of the packages of notes is done in the Packing Section. The Stock Exchange Section has charge of the star notes before they are passed out to the operatives, while the Vault and Delivery Section receives the finished notes and takes care of them until they are delivered to the Treasury or the Federal Reserve vault.

During the fiscal year 1927, the direct labor and material cost amounted to \$733,906.85; at the end of the year the major equipment consisted of forty-one presses and seven spot-welding machines. In October, 1928, the employees numbered 362.

Postage Stamp Division. The Postage Stamp Division executes all work on postage stamps with the exception of the engraving, the printing, and the gumming of stamps printed on rotary presses. Printed stamps are delivered to the Postage Stamp Division by the Plate Printing Division, those printed on rotary presses being gummed and those printed on flat bed presses being unguammed.

The examination of the stamps for imperfections is made in connection with the several processes in the operations of the Division.

The Division is organized into the following sections:

Clerical	Book
Gumming and Perforating	Coil
Rotary Perforating	Packing and Shipping

Administrative control is exercised by the Clerical Section. The Gumming and Perforating Section gums all work printed on flat bed presses, perforates the sheets, inspects the work for defects, cuts the sheets to proper sizes for flat delivery, and counts all stock delivered flat. The stock delivered flat is also fastened together with wire staples in one margin. This Section also manufactures the gum, which is carried to the machines by means of a circulating distribution system.

The Rotary Perforating Section perforates all 200-subject, 360-subject and 400-subject work printed and gummed on the rotary presses. This work is reduced to sheets of 200 subjects, 360 subjects, or 400 subjects as it is perforated. The 200-subject and 400-subject work is examined for defects and prepared for delivery in sheets of fifty stamps and one hundred stamps each. The 360-subject work is perforated, counted, and transferred to the Book Section.

Books and coils are manufactured in the Book Section and the Coil Section respectively. The Coil Section also manufactures coils of internal revenue stamps used for playing cards. The Packing and Shipping Section has charge of the vaults and the filling of postmasters' requisitions. The stock of finished stamps is kept in this Section until instructions regarding shipment are given by the Post Office Department.

During the fiscal year 1927, the direct labor and material cost for the operations of the Division amounted to \$385,801.23. In October, 1928, the number of employees was 208.

Surface Printing Division. All printing which is not done on intaglio steel plates is executed in the Surface Printing Division. The work includes the printing of checks, of liquor permits and prescriptions, transportation requests, licenses, naturalization certificates, of most internal revenue stamps, of a portion of the bonds, and other securities, the numbering and the placing of the seal on national bank and Philippine currency, the assembling of checks

and permits into books, and the manufacture of composition rollers for presses used in other divisions of the Bureau. This Division does all or a portion of the work incidental to all the products of the Bureau except United States notes, Federal Reserve notes, gold and silver certificates, and postage stamps.

The Division is organized into the following sections:

Clerical	Revenue Finishing Section
Composing	Binding
Flat Bed Printing	Roller Making
Offset Printing	Vaults and Delivery
Currency Overprinting	

The Clerical Section exercises general administrative control over the work of the Division.

Owing to the variety of the products of this Division there is no general sequence of operations applying to all work, because as a rule all work on a particular job is completed in one section, although there is some work, particularly that involving binding, which passes through several sections.

Type setting for the printed portions of bonds, certificates of indebtedness, and Treasury notes, and for overprinting on revenue stamps and other work is done in the Composing Section. Practically no work is printed from type, as electrotypes are made from the type forms, the electrotyping being done at the Government Printing Office. Composition constitutes a small but important part of the work of the Division.

All flat bed printing is done in the Flat Bed Section. In this work the printing is done directly from the electrotypes. The work includes the printing of the type portion of bonds, certificates of indebtedness, and Treasury notes and their numbering, and the overprinting and numbering of some series of internal revenue stamps, checks, transportation requests, etc.

In the Offset Section all printing is done by the offset process, in which the ink is applied to the plate and is offset to a rubber blanket on a revolving cylinder, the printing on the paper being obtained from the blanket. The plate may be in relief (a zinc etching), or the subject may be reproduced by photographic process on a planograph zinc plate without relief. Where the plate without relief is used, ink is taken up only by the lines reproduced on the plate, the remainder of the plate being clean.

Offset printing is used mainly for checks and most classes of internal revenue stamps.

The Currency Overprinting Section numbers and prints the seal on national bank and Philippine currency. This work is of essentially the same character as the numbering and sealing of other currency by the Numbering Division, described on page 42. It also prints on each national bank note the charter number of the bank, this printing being of the same color as the number and seal is done in one operation with the printing of the serial numbers and seal.

All work on internal revenue stamps not done in other units is performed in the Revenue Finishing Section. The processes in this Section include cutting, trimming, perforating, and wrapping of internal revenue stamps, which pass from this unit to the Vaults and Delivery Section. This Section also does some miscellaneous trimming, although most operations of this character are performed in the Bindery Section. The Revenue Finishing Section also acts as a general receiving and distributing unit for all partly completed work received from other divisions.

The Bindery Section executes all the work in connection with the output of the Bureau that is ordinarily done in a commercial bindery, with the exception of the manufacture of postage stamp books, which are made in the Postage Stamp Division. The work done in the bindery is mostly perforating, collating, wire stitching, and trimming. Transportation requests, liquor permits, and prescriptions are in duplicate or triplicate, and must be collated. Binding is mostly in board or wire stitched paper covers.

Rollers for all the presses in the Bureau are made in the Roller Making Section.

The Vaults and Delivery Section has charge of the stock of internal revenue stamps, and attends to the shipments of all completed work. With the exception of internal revenue stamps, all products are delivered immediately to the several branches of the government ordering them. Internal revenue stamps are kept on hand and are shipped to the several collectors on the order of the Commissioner of Internal Revenue.

The total cost of labor and material during the fiscal year 1927 was \$778,309.94; in October, 1928, the number of employees was 493.

Ink Making Division. The Bureau has been making its own ink ever since it became firmly established as a government enterprise, the annual output of the Ink Making Division being approximately 5,000,000 pounds of ink, of which approximately 99 per cent is for printing from intaglio plates, and about one per cent is used by the Surface Printing Division. About 500,000 pounds of waste ink is reconditioned annually.

Plate printing ink has a base of barytes or sulphate of barium, this substance constituting 30 per cent in bulk of the ink. The remaining ingredients are dry colors and oil. The basic colors used are aniline red, chrome yellow, Prussian and ultramarine blue, and bone black.

The Division is organized into the following sections:

Clerical	Testing Laboratory
Ink Mixing	Whiting Balls
Ink Grinding	

The Clerical Section exercises administrative control. In the Ink Mixing Section the base color and oil are thoroughly mixed, after which the Ink Grinding Section grinds the mixture under heavy steel rollers.

The Testing Laboratory makes necessary tests of raw materials, of finished inks, of glue manufactured in the Bureau, and of such other supplies purchased by the Bureau as the Laboratory is equipped to analyze. The Whiting Balls Section makes the whiting balls used by the flat bed plate printers for powdering their hands before wiping the plate.

The total cost of material used and personnel employed in the manufacture of ink was \$502,882.69 during the fiscal year 1927. In October, 1928, the personnel numbered thirty-nine.

Office of Assistant Director in Charge of Administration. The Assistant Director in charge of administration has supervision over the following divisions:

Orders	Watch
Accounting	Buildings and Grounds
Personnel	Plate Vault
Mails and Files	Federal Reserve Vault
Purchase, Storage, and Issue	Engineering and Machine
Disbursing	Garage
Hygienic	Press Register

48 BUREAU OF ENGRAVING AND PRINTING

Orders Division. The work of the Orders Division is purely clerical, and consists of the preparation of proper instructions for the handling of all work passing through the plant. During the fiscal year 1927 the orders prepared numbered 33,546, more than half of which, or 19,728, were for national bank currency. While national bank currency constitutes only a small percentage of the output of the Bureau, there are more orders because of the large number of banks and the small quantities ordered at one time. The total expense of operating the Division during the fiscal year 1927 was \$19,233.13. In October, 1928, eleven employees were engaged in this work.

The Division is divided into four sections, each of which prepares orders for the product from which it derives its name, as follows:

Currency	Stamps
Bonds and Certificates	Miscellaneous

Accounting Division. The Accounting Division has charge of the cost accounting, the preparation of estimates of cost of proposed work, the compilation of statistical statements, the keeping of time records, the preparation of pay rolls, the maintenance of appropriation accounts, the keeping of records of accountability of paper issued for printing money and securities and of paper spoiled by plate printers, of injuries to employees, and of stores on hand. The Chief of the Division acts as budget officer for the Bureau and supervises the preparation of all supporting statements accompanying the budget estimates.

The Division is divided into the following sections, whose names indicate their duties:

Office of Chief of Division	Cost Accounts
Appropriation and Paper Control Records	Injury Records
Timekeeping	Stock Control Accounts
Payrolls	Messengers

During the fiscal year 1927 the cost of operating the Division amounted to \$86,691.15. In October, 1928, the personnel numbered forty-six.

Personnel Division. The keeping of records and the handling of correspondence relating to appointments, separations, promotions, efficiency records, and classification form the work of the Per-

sonnel Division, which also has charge of the assignment of employees and the issuance of identification cards and badges. During the fiscal year 1927 the cost of operating the Division amounted to \$21,654.88. In October, 1928, there were thirteen employees.

The Division is divided into the following sections:

Employment
Assignment
Efficiency Rating Records

Mails and Files Division. All incoming mail is received and opened in the Mails and Files Division, which routes all letters to the proper division for action. This Division also maintains a centralized file for all general correspondence. It is divided into two sections—one handling the incoming mail and one looking after the filing.

During the fiscal year 1927, the total cost of operation, including purchase of equipment, was \$13,686.12. In October, 1928, six persons were employed.

Purchase, Storage, and Issue Division. The Purchase, Storage, and Issue Division has charge of the purchase of all machinery and supplies, except distinctive paper used for money, which is supplied by the Treasury Department. Ordinary supplies, such as are in common use by the several departments of the government are purchased under the contracts made by the General Supply Committee;⁶ coal is furnished by the Government Fuel Yard;⁷ all other purchases are made on annual or special contracts executed by the Bureau through the Purchase Section of this Division.

On delivery, machinery and special equipment are turned over to the Engineering and Machine Division for installation, unless the contract calls for installation by the seller. All supplies are stored in the Storage and Issue Section of the Division, and are issued to the several divisions on requisition.

⁶ The General Supply Committee, established by the act of June 17, 1910 (36 Stat. L., 531), makes contracts for supplies used in common by two or more federal establishments.

⁷ The Government Fuel Yard, established by the act of July 1, 1918 (40 Stat. L., 672), purchases fuel for all governmental services in the District of Columbia, but the cost is charged to the appropriations to separate establishments using the fuel. The yard is operated by the Bureau of Mines of the Department of Commerce.

The stock carried in the storeroom aggregates about 3500 items. Many of these are used in large quantities, the purchases of important items during the fiscal year 1927 being as follows:

Principal Purchases, Fiscal Year 1927

Commodities	Quantity	Cost
Colors	pounds	\$287,988.18
Barytes	do	18,155.98
Plate oil	gallons	120,778.10
Paper		
For internal revenue stamps....	pounds	173,593.42
For checks	do	31,431.90
For postage stamps.....	do	131,102.27
Bristol board	do	23,862.34
Dextrine	do	32,822.74
Steel plates .....	.....	44,113.13
Millinet	do	42,410.80
Other textiles .....	.....	113,236.93
Coal	long tons	82,202.16
Electric current .....	.....	69,741.10
Electrical supplies .....	.....	33,149.56
Machinery .....	.....	247,485.66
Machine and press parts.....	.....	72,258.27
Other .....	.....	411,442.98
Total .....	.....	\$1,935,775.52

In addition distinctive paper for Federal Reserve notes valued at \$311,013.70 was obtained from the Treasury Department and paid for by transfer of appropriation.

The Division is divided into two sections, (1) Purchase, and (2) Storage and Issue, whose names indicate their duties.

During the fiscal year 1927, the total cost of operating the Division amounted to \$47,714.78. In October, 1928, the number of employees was twenty-eight.

Disbursing Division. All disbursements for the Bureau are made by the Disbursing Division, the total payments during the fiscal year 1927 being \$10,268,107.65, chargeable to five appropriations. There were paid 4429 vouchers for purchases and 568 vouchers for personal services, including pay roll vouchers. Salaries are paid four times a month.

The Division is subdivided into a Record Section and a Disbursements Section. The number of employees in October, 1928, was four. The cost of running the Division during the fiscal year 1927 was \$9,478.08.

Hygienic Division. First-aid treatment in case of injury or indisposition is rendered by the Hygienic Division, which also looks after general sanitary conditions throughout the plant, and checks up on employees who are absent without permission in order to determine whether they are sick.

During the fiscal year 1927, the treatments numbered 58,619, the total expense for salaries, supplies and equipment being \$15,339.23. In October, 1928, the personnel consisted of the medical officer in charge, three nurses, and a clerk.

The medical officer in charge of this Division also supervises the operations of the Relief Room of the Division of Loans and Currency of the Treasury Department, located in an adjoining building.

Watch Division. The Watch Division has charge of the guarding of the building and its contents, the protection of the armored trucks hauling currency and stamps from the Bureau, and the guiding of visitors through the building. For these purposes it is divided into three sections known as Watchmen Section, Armored Truck Guards Section, and Guides Section.

The Watchmen Section works in three shifts, in order to protect the building day and night. The other two sections are on duty only in the daytime. The Guides Section also has charge of the parcel booth where employees check parcels on entering the building.

In October, 1928, the personnel consisted of a captain, two lieutenants, seventy-nine watchmen, twelve guides, and ten money guards. The total cost of operation during the fiscal year 1927 was \$126,072.98. The number of visitors shown through the building was 274,731, an average of over nine hundred a day. Special galleries inclosed in heavy wire screens are provided for the use of visitors, and sightseers are seldom on the floors of the divisions where the work is being carried on.

Buildings and Grounds Division. The Buildings and Grounds Division has charge of the cleaning of the building, the operation

52 BUREAU OF ENGRAVING AND PRINTING

of the elevators and the telephone switchboard, the care of the grounds, the assorting of waste paper, the cleaning of presses, and the furnishing of attendants in the dressing rooms. The work of the Division is divided among the following sections:

Clerical	Char Force
Telephone Switchboard	Dressing Room Attendants
Elevator Operators	Waste Paper Assorters
Gardener	Press Cleaners
Labor	Towel Laundry

The Waste Paper Assorters Section does not handle sheets spoiled in printing, as these sheets are accounted for separately and are finally macerated in the same manner as retired currency. The material which passes through this section consists entirely of trimmings, waste of wrapping and other ordinary papers, and rags no longer fit for use. During the fiscal year 1927, there were assorted and baled 1,977,256 pounds of paper and rags; the sales of waste trimmings amounted to 950,775 pounds, for which \$8,469.89 was received.

In October, 1928, the employees of the Division numbered 369; the total expenditure during the year for labor and materials amounted to \$322,399.72.

Plate Vault Division. The custody and safekeeping of dies, rolls, plates, and other engraved pieces not in productive use or process of manufacture are duties of the Plate Vault Division. At the end of the fiscal year 1927, there were 160,165 pieces in the vault. During the year, 19,105 pieces were added and 17,976 obsolete pieces weighing 172,950 pounds were destroyed. The work of the Division is divided between two sections—the Clerical Section, which supervises and keeps the records, and the Storage and Issue Section, which has the actual custody of the plates.

In October, 1928, the number of employees was eleven. The expense of operation for the fiscal year 1927 was \$24,455.38.

Federal Reserve Vault Division. The reserve stock of Federal Reserve notes is kept in the Federal Reserve Vault Division until shipment is made to the several Federal Reserve banks. During the fiscal year 1927, there were received 42,657 packages of four thousand notes with a value of \$1,564,900,000; the shipments aggregated 38,796 packages with a value of \$1,445,760,000.

In October, 1928, the number of employees was seven, divided between the Clerical Section and the Storage and Issue Section. The cost of operation for the fiscal year 1927 was \$11,813.95.

Engineering and Machine Division. The work of the Engineering and Machine Division includes the installation and repair of machinery, plumbing, electrical work, and woodwork; the making of structural alterations to the building; and the operation of the power plant, of the rag laundry, and of the macerator of cancelled paper money. It is divided into the following sections:

Clerical	Masonry Force
Machine Shop	Engineers and Firemen
Electrical Shop	Rag Laundry
Carpenter and Paint Shop	Macerator
Plumbing Shop	Laborers

General administrative control is exercised by the Clerical Section. The mechanical equipment, with the exception of electric motors, is under the supervision of the Machine Shop Section. This unit installs new machinery, at times builds machines from plans prepared in the Bureau, repairs and rebuilds machinery in use, attends to the moving of machinery, and replaces broken parts. It also makes repairs to motor vehicles. Similar work on electric motors, as well as the installation of all wiring, is done by the Electrical Shop Section.

The Carpenter and Paint Shop Section has charge of all new work and repairs on wooden furniture and equipment and the woodwork of the building. It also executes painting of every character, whether on wood or metal. All piping, except electrical conduits, is installed and maintained by the Plumbing Shop, which also does general plumbing work of every description. The steam plant is operated by the Engineers and Firemen Unit. The Laborers' Section is a mobile unit whose personnel is assigned to other sections as needed.

The rags used for wiping the ink from intaglio printing plates are laundered in the Rag Laundry Section, and money withdrawn from circulation and cancelled by the Treasury Department is macerated and reduced to pulp in the Macerator Section. The Masonry Force Section makes all repairs and additions to brick, plaster, and cement work.

During the fiscal year 1927, the total cost in connection with the operations of the Division, including fuel, new machinery, and parts for other Divisions, building supplies and materials, and salaries, was \$1,181,059.12. In October, 1928, the number of employees was 315.

Garage Division. The Garage Division has charge of the operation and storage of all motor vehicles owned by the Bureau. The motor equipment at the end of the fiscal year 1927, comprised two 5-ton armored trucks, three 5-ton, two $3\frac{1}{2}$ -ton, and two small trucks, and eleven passenger cars, including an ambulance. During the year the labor and material costs amounted to \$47,625.77. The number of employees in October, 1928, was twenty-eight.

Press Register Division. The Press Register Division is one of the links in the chain for safeguarding the printing of money and other paper of value. Each press doing work of this character is equipped with a device which registers the number of impressions. These registers are read daily by the staff of the Press Register Division, and for every impression by the press there must be a sheet of finished work, a spoiled sheet, or a proof.

On June 30, 1927, there were 496 presses equipped with registers, of which 396 were in the Plate Printing Division, fifty-nine in the Surface Printing Division, and forty-one in the Numbering Division. The cost of operating the Division during the fiscal year 1927 was \$26,132.13. In October, 1928, the personnel numbered twenty.

Cafeteria. Owing to the character of the work the employees are not allowed to leave the building for lunch, and it is therefore necessary to provide means for feeding them. The government provides space and permanent equipment for a cafeteria, which is operated by an association of employees, the officers being elected annually. As the cost of food and operation is met entirely from the receipts, the management of the cafeteria is not a government enterprise. The control by the administrative officers of the Bureau extends merely to the consideration of major matters which may affect Bureau work and administration.

Planning Unit. The Planning Unit, which reports immediately to the Director, makes studies of methods of accounting and opera-

tion in order to simplify the reports, to give better accounting control, to develop a more efficient flow of work, and to effect economies in operation and the use of material. It consists of an investigator detailed from the Bureau of Efficiency.

Office of Mechanical Expert and Designer. The Office of Mechanical Expert and Designer has charge of the designing of improved mechanical devices to meet the exigencies of the work. Both new machines and changes in existing equipment are designed. In some cases the new devices are built by the Engineering and Machine Division, and in some cases the work is done by commercial houses according to plans and specifications furnished.

During the fiscal year 1927, the total expenditure amounted to \$7,392.49. In October, 1928, the force consisted of the mechanical expert and designer and an engineering draftsman.

CHAPTER IV

PERSONNEL SYSTEM

Appointments. All appointments in the Bureau are made by the Secretary of the Treasury after certification by the Civil Service Commission.

In October, 1928, there were 4676 persons employed in the Bureau.

Compensation. Salaries and wages are fixed by two methods: (1) In accordance with the Classification Act of 1923, and (2) by the Secretary of the Treasury.

The Classification Act of 1923, as amended in 1927, applies to all supervisory positions (42 Stat. L., 1489). It also applies to all positions in the Bureau of Engraving and Printing and the Mail Equipment Shop which are not in a recognized trade or craft and the duties of which "are to perform or direct manual or machine operations requiring special skill or experience, or to perform or direct the counting, examining, sorting or other verification of the product of manual or machine operations" (45 Stat. L., 776).

The act is a general one governing all positions, except those in a recognized trade or craft, in all the departments and establishments in Washington. It is designed to classify positions and fix their compensation on the basis of the duties and responsibilities of those positions and the qualifications required for their performance. As a salary fixing act, it applies only to positions in the departments, independent establishment, and municipal offices in the District of Columbia, and even some of those positions are excluded from the operation of the act. Section 13 consists of a compensation schedule in which Congress establishes the standard rates of compensation to be paid for each grade of work in each of the different broad kinds of work such as the professional and scientific service, the subprofessional service, the clerical, administrative and fiscal service, the custodial service and the clerical-mechanical service. In the installation of the Classification Act, the

heads of the several departments allocated the positions in their departments to this salary schedule in a manner prescribed by the Personnel Classification Board which reviewed and revised these allocations. The exact salary of each position within the service and grade to which it was finally allocated were then determined in accordance with the rules contained in Section 6 of the act. New positions, and old positions the duties of which are changed, are allocated to services and grades under the Act by department heads subject to review and revision by the Personnel Classification Board. The compensation of the position must be at one of the rates prescribed by Congress for the service and grade to which the position is allocated. Advancement from rate to rate within the grade is dependent on efficiency and is controlled through the efficiency rating system and the provisions of the appropriation acts.

All rates under the Classification Act are by the year, day, or hour.

The Classification Act does not apply to rates to be paid to members of a recognized trade or craft, their helpers and apprentices, or to skilled or semi-skilled laborers, unless these workers are under the direction and control of the custodian of a public building or perform work which is subordinate, incidental, or preparatory to work of a professional, scientific or technical character. Craftsmen who have supervisory or administrative duties are paid in accordance with the Classification Act.

As the law is silent regarding the method of fixing wages for craftsmen the head of a department or independent establishment may establish the rates by means of such machinery as he may deem advisable, except in the case of the Government Printing Office, where specific provision of law has been made (43 Stat. L., 658).

The Secretary of the Treasury, therefore, fixes the rates to be paid to all skilled trades. Each appropriation act provides that rotary press plate printers shall be paid at per diem rates and that all other plate printers shall be paid at piece rates "not to exceed the rates usually paid for such work."

APPENDIX I

OUTLINE OF ORGANIZATION

EXPLANATORY NOTE

The purpose of the Outlines of Organization in this series of Monographs is to show in detail the organization and personnel of the several services of the national government to which they relate. They have been prepared in accordance with the plan followed by the President's Commission on Economy and Efficiency in its outlines of the organization of the United States government.¹ They differ from those outlines, however, in that whereas the Commission's report showed only organization units, the presentation herein has been carried far enough to show the personnel embraced in each organization unit.

These outlines are of value not merely as an effective means of making known the organization of the several services. If kept revised to date, they constitute exceedingly important tools of administration. They permit the directing personnel to see at a glance the organization and personnel at their disposal. They establish definitely the line of administrative authority and enable each employee to know his place in the system. They furnish the essential basis of plans for determining costs by organization division and sub-division. They afford the data for a consideration of the problem of classifying and standardizing personnel and compensation. Collectively they make it possible to determine the number and location of organization units of any particular kind, such as, laboratories, libraries, blue-print rooms, or other plants, to what services attached and where located, or to determine what services are maintaining stations at any city or point in the United States. The Institute hopes that upon the completion of the present series, it will be able to prepare a complete classified statement of the technical and other facilities at the disposal of the

¹ 62 Cong., H. doc. 458, 1912, 2 vols.

government. The present monographs will then furnish the details regarding the organization, equipment, and work of the institution so listed and classified.

OUTLINE OF ORGANIZATION

BUREAU OF ENGRAVING AND PRINTING
TREASURY DEPARTMENT
OCTOBER, 1928

<i>Unit of Organization:</i>	<i>Classes of Employees</i>	<i>Number</i>	<i>Salary Rate</i>
1. Office of Director			
Director		1	year \$8,000.00
Secretary		1	year 2,600.00
Messenger		1	year 1,500.00
1. Office of Assistant Director in Charge of Production			
1. Immediate Office of Assistant Director			
Assistant Director		2	year 6,000.00
Secretary		1	year 2,200.00
Messenger		1	year 1,500.00
2. Engraving Division			
1. Clerical Section			
Superintendent		1	year 6,000.00
Chief Clerk		1	year 2,600.00
Clerk to Superintendent		1	year 1,920.00
Clerk		2	year 1,740.00
		5	year 1,560.00
Proof Verifier		1	year 1,680.00
Assistant to Verifier		1	year 1,560.00
Custodian of Proofs		1	year 1,560.00
2. Designing Section			
Designer		1	year 5,000.00
Assistant Designer		1	year 4,600.00
Lathe Operator		1	day 13.12
Die Sinker		1	day 9.92
3. Engraving Section			
Picture Engraver		1	day 18.56
		1	day 17.92
		1	day 17.28
		2	day 16.64
		1	day 14.70
		1	day 10.40

1. Office of Director—*Continued*1. Office of Assistant Director in Charge
of Production—*Continued*2. Engraving Division—*Continued*
3. Engraving Section—*Continued*
Apprentice to Picture

Engraver	5	day	5.60
Letter Engraver	1	day	16.00
	1	day	12.80
	1	day	12.00
	1	day	9.92

Apprentice to Letter
Engraver

	1	day	4.64
	1	day	3.36
Script Engraver	1	day	15.36
Engraver	1	day	16.32
	1	day	15.68
	2	day	15.36
	1	day	14.72
	1	day	14.40
	1	day	13.76
	1	day	12.16
	1	day	11.84
	1	day	9.92
	1	day	6.00
Square Letter Engraver	1	day	8.96
	1	day	8.32
	1	day	6.88

4. Transferring Section

Foreman	1	year	4,700.00
Transferer	1	day	13.44
	1	day	13.28
	1	day	12.64
	4	day	12.32
	2	day	12.00
	3	day	11.67
	2	day	11.52
	2	day	11.36
	1	day	10.56
	3	day	10.24

5. Plate Cleaning Section

Foreman	1	year	3,350.00
Plate Finisher	1	day	9.60
	1	day	9.28
	5	day	8.64
	27	day	8.16
	1	day	7.52

OUTLINE OF ORGANIZATION

61

I. Office of Director—Continued

**1. Office of Assistant Director in Charge
of Production—Continued**

2. Engraving Division—Continued

6. Proving Section

Foreman	I	year	3,200.00
Printer	8	day	9.52
Operative (Assistant)	3	hour	.55

7. Hardening Section

Foreman	I	day	9.12
Hardener	I	day	8.16
Plate Waxer	2	hour	.60

8. Electrolytic Section

Foreman	I	year	5,200.00
Assistant Foreman	I	year	3,200.00
Technical Aid	I	year	4,200.00

Custodian of Electrolytic Stock	I	year	1,740.00
Plate Finisher	I	day	8.64
	4	day	8.32

Machinist	3	day	8.80
Electrolytic Depositor	3	hour	.75
	4	hour	.70

Electrolytic Plate Maker	4	hour	.75
	4	hour	.70
Electrolytic Plate Makers' Assistant	I	hour	.65

9. Machinists Section

Foreman	I	year	3,350.00
Machinist	6	day	8.80

10. Photolithographic Section

Foreman	I	year	4,400.00
Distributor of Stock	I	year	1,920.00
Photographer	I	day	10.24

	I	day	8.00
Photolithographer	I	day	9.60
	I	day	8.00
	I	day	7.76

Photo Negative Cutter and Retoucher	I	day	8.00
Litho Transferer	I	day	8.64
	I	day	8.24

Photolithographic Helper	I	day	5.60
	I	day	4.72

1. Office of Director—*Continued*1. Office of Assistant Director in Charge
of Production—*Continued*2. Engraving Division—*Continued*

11. Steel Stock Cage Section

Operator	I	hour	.85
	I	hour	.70

12. Stock Distributors Section

Chief Distributor	I	year	2,300.00
Distributor	I	year	2,400.00
	I	year	2,100.00
	I	year	1,920.00
	I	hour	.75

Assistant Custodian of En-			
graving Stock	I	year	1,920.00

13. Pantograph Section

Operator	I	day	5.76
	I	day	5.12

Plate Beveler and Planer	3	hour	.70
--------------------------	---	------	-----

14. Hammering Section

Hammerer	I	hour	.70
	2	hour	.65

Plate Straightener	I	hour	.71
	2	hour	.65

15. Plate Haulers Section

Head Plate Hauler	I	hour	.65
Hauler	8	hour	.55

3. Wetting Division

1. Clerical Section

Superintendent	I	year	3,200.00
Assistant Superintendent	I	year	2,300.00
Clerk	I	year	1,980.00
	10	year	1,740.00
	I	year	1,560.00

2. Hand Wetting Section

Foreman	I	hour	.85
Operative	22	hour	.55
Skilled Helper	12	hour	.55

3. Machine Wetting Section

Foreman	2	hour	.85
Operative	56	hour	.55
Skilled Helper	15	hour	.65
	13	hour	.55

4. Stock and Distribution Section

Foreman	I	hour	.75
Deliveryman	9	hour	.65

I. Office of Director—*Continued*1. Office of Assistant Director in Charge
of Production—*Continued*3. Wetting Division—*Continued*4. Stock and Distribution Sec-
tion—*Continued*

Counter	9	hour	.55
Skilled Helper	10	hour	.55

4. Plate Printing Division

1. Printing Division Office

Superintendent	1	year	4,600.00
Assistant Superintendent	1	year	3,500.00
Chief Clerk	1	year	2,500.00
Clerk	2	year	2,200.00
	1	year	1,920.00
	1	year	1,620.00
	20	year	1,560.00
Messenger	1	year	1,380.00
	1	year	1,500.00

2-8. Flat-bed Power Printing (12

(sections) Sections

Foreman	12	year	3,400.00
Printer	336	piece rates	
Assistant	668	hour	.55
Skilled Helper	50	hour	.55

9. Hand Roller Section

Foreman	1	year	3,400.00
Printer	55	piece rates	
Assistant	55	hour	.55
Skilled Helper	4	hour	.55

10-11. Rotary Printing Sections

(two sections)

Foreman	1	year	3,400.00
	1	day	10.25
Printer	31	day	10.25

Superintendent of Press

Helpers	1	hour	.87
Press Helper	34	hour	.70
Skilled Helper	10	hour	.55
Operative	4	hour	.55

12. Textile Room

Textile Cutter	1	hour	.75
Skilled Helper	3	hour	.65
Operative (Sewer)	1	hour	.55

1. Office of Director—*Continued*1. Office of Assistant Director in Charge
of Production—*Continued*4. Plate Printing Division—*Continued*13. Ink and Rag Distribution
Section

Supervisor	1	year	2,500.00
Skilled Helper	10	hour	.55
5. Examining Division			
1. Clerical Section			
Superintendent	1	year	3,800.00
Assistant Superintendent	1	year	2,800.00
Chief Clerk	1	year	2,300.00
Clerk	1	year	1,920.00
	3	year	1,740.00
	19	year	1,560.00
	1	year	1,440.00
	3	year	1,380.00
Billing Machine Operator	1	year	1,560.00
Messenger	1	year	1,500.00
	2	year	1,440.00

2. Wet Counting and Tissue Separating Section

Forewoman	1	hour	.90
Assistant Forewoman	1	hour	.75
Wet Counter	58	hour	.55
Separator	33	hour	.50
Skilled Helper	6	hour	.55
Counter	5	hour	.55
3. Drying Section			
Foreman	1	hour	.90
Assistant Foreman	1	hour	.75
Steamman	1	hour	.85
	1	hour	.75
	1	hour	.70
Spreader	66	hour	.65
	1	hour	.60

4. Back Examining Section

Forewoman	2	hour	.85
Checker	3	hour	.70
Examiner	56	hour	.65
Separator	30	hour	.50
Skilled Helper	3	hour	.65
	3	hour	.60
	5	hour	.55

1. Office of Director—*Continued*1. Office of Assistant Director in Charge
of Production—*Continued*5. Examining Division—*Continued*

5. Face Examining Section

Forewoman	1	hour	.90
Assistant Forewoman	1	hour	.75
Final Stock Clerk	3	hour	.70
Assorter	5	hour	.70
	4	hour	.65
Checker	1	hour	.65
Stock Assembly Clerk	11	hour	.65
Examiner	75	hour	.65
Skilled Helper	6	hour	.65
	3	hour	.55

6. Sizing Section

Forewoman	1	hour	.90
Assistant Forewoman	1	hour	.75
Counter	13	hour	.55
Sizer	30	hour	.55
Forewoman	1	hour	.90
Machineman	7	hour	.65
	1	hour	.60
Skilled Helper	2	hour	.55

7. Plater Pressing Section

Forewoman	2	hour	.90
Counter	32	hour	.55
Presser	90	hour	.55
Shaker	3	hour	.50
Cutter	3	hour	.75
Skilled Helper	1	hour	.65
	1	hour	.60
	27	hour	.55

8. Trimming Section

Forewoman	1	hour	.90
Assistant Forewoman	1	hour	.75
Stock Assembly Clerk	5	hour	.65
Floor Girl	3	hour	.65
Examiner	40	hour	.65
Trimmer	133	hour	.65
Counter	7	hour	.55
Boxtender	13	hour	.50
Skilled Helper	2	hour	.65
	5	hour	.55

9. Hydraulic Pressing Section

Forewoman	1	hour	.75
Counter	3	hour	.55

66 BUREAU OF ENGRAVING AND PRINTING

1. Office of Director—Continued

**1. Office of Assistant Director in Charge
of Production—Continued**

5. Examining Division—Continued

9. Hydraulic Pressing Section—Continued

Presser	13	hour	.55
Skilled Helper	6	hour	.55

10. Vaults Section

Foreman	1	hour	.95
---------	---	------	-----

Assistant Foreman	1	hour	.90
-------------------	---	------	-----

Skilled Helper	4	hour	.70
----------------	---	------	-----

	10	hour	.65
--	----	------	-----

	1	hour	.60
--	---	------	-----

	5	hour	.55
--	---	------	-----

	1	hour	.50
--	---	------	-----

Electric Truck Operator	1	hour	.55
-------------------------	---	------	-----

Canceling Machine Operator	1	hour	.55
----------------------------	---	------	-----

6. Numbering Division

1. Clerical Section

Superintendent	1	year	3,300.00
----------------	---	------	----------

Clerk	5	year	1,740.00
-------	---	------	----------

	3	year	1,620.00
--	---	------	----------

	1	year	1,560.00
--	---	------	----------

**2. Numbering, Sealing, Examining
and Separating Section**

Foreman	2	year	3,250.00
---------	---	------	----------

Forewoman	2	hour	.90
-----------	---	------	-----

Pressman	31	day	8.80
----------	----	-----	------

Examiner	253	hour	.65
----------	-----	------	-----

Receiver	34	hour	.65
----------	----	------	-----

3. Banding Section

Bander	7	hour	.65
--------	---	------	-----

4. Packing Section

Forewoman	1	hour	.90
-----------	---	------	-----

Packer	9	hour	.65
--------	---	------	-----

Helper	1	hour	.55
--------	---	------	-----

5. Stock Exchange Section

Forewoman	14	hour	.75
-----------	----	------	-----

Window Clerk	6	hour	.65
--------------	---	------	-----

6. Vault and Delivery Section

Vault Keeper	2	hour	.75
--------------	---	------	-----

Foreman	3	hour	.75
---------	---	------	-----

7. Postage Stamp Division

1. Clerical Section

Superintendent	1	year	3,600.00
----------------	---	------	----------

Principal Custodian of Vaults	1	year	2,500.00
----------------------------------	---	------	----------

OUTLINE OF ORGANIZATION

67

1. Office of Director—*Continued*1. Office of Assistant Director in Charge
of Production—*Continued*7. Postage Stamp Division—*Continued*1. Clerical Section—*Continued*

Clerk	3	year	1,740.00
	2	year	1,620.00
	2	year	1,560.00

2. Gumming and Perforating
Section

Forewoman	1	year	1,920.00
Operative	15	hour	.55
Gum Mixer	2	hour	.75
Gum Tender	1	hour	.65
Stock Distributor	1	hour	.65

3. Rotary Perforating Section

Forewoman	1	year	2,400.00
Examiner and Machine Operator	41	hour	.65
Bander	12	hour	.55
Custodian of Vault	1	hour	.95
Assistant Custodian of Vault	1	hour	.75
Stock Distributor	4	hour	.65
Cutter	1	hour	.75

4. Book Section

Forewoman	1	hour	.90
Packer	1	hour	.90
Examiner	36	hour	.60
Stitcher		hour	.65
Strapper			.60
			.65
Cutter	4	hour	.75
Stock Distributor	4	hour	.65

5. Coil Section

Forewoman	1	hour	.90
Assistant Forewoman	1	hour	.70
Coiling Machine Operator	40	hour	.55
Perforating Machine Operator		hour	.65
Joiner			.65
Stock Distributor	4	hour	.65
Cutter	1	hour	.75

68 BUREAU OF ENGRAVING AND PRINTING

1. Office of Director—*Continued*

1. Office of Assistant Director in Charge of Production—*Continued*

7. Postage Stamp Division—*Continued*

6. Packing and Shipping Section

Forewoman	1	year	2,400.00
Assistant Forewoman	1	year	1,920.00
Custodian of Vault	1	hour	.75
Assistant Custodian of Vault	1	hour	.75
Foreman of Delivery	1	hour	.75
Assistant Foreman of Delivery	1	hour	.75
Packer	14	hour	.65
Counter	5	hour	.65
	1	hour	.55

8. Surface Printing Division

1. Clerical Section

Superintendent	1	year	4,800.00
Assistant Superintendent	1	year	3,500.00
Chief Clerk	1	year	2,700.00
Assistant Chief Clerk	1	year	1,920.00
Clerk	1	year	1,920.00
	5	year	1,740.00
	3	year	1,620.00
	38	year	1,560.00

2. Composing Section

Foreman	1	year	3,250.00
Compositor	4	day	8.80

3. Flat-Bed Printing Section

Foreman	2	year	3,250.00
Pressman	28	day	8.80
Forewoman	1	hour	.85
Assistant Forewoman	1	hour	.70
Examiner	40	hour	.65
	6	hour	.60
Press Feeder	22	hour	.65
Skilled Helper	4	hour	.65
Press Helper	4	hour	.55

4. Offset Printing Section

Foreman	1	year	3,350.00
Pressman	18	day	9.20
Forewoman	1	hour	.85
Examiner	58	hour	.65
	8	hour	.60

OUTLINE OF ORGANIZATION

69

1. Office of Director— <i>Continued</i>				
1. Office of Assistant Director in Charge of Production— <i>Continued</i>				
8. Surface Printing Division— <i>Continued</i>				
4. Offset Printing Section— <i>Continued</i>				
Skilled Helper	5	hour	.75	
	7	hour	.65	
	2	hour	.60	
	2	hour	.55	
Press Cleaner	55	hour	.55	
Roller Coverer	1	hour	.65	
5. Currency Overprinting Section				
Foreman	1	year	3,250.00	
Pressman	11	day	8.80	
Assistant Forewoman	1	hour	.70	
Paging Machine Operator	3	hour	.65	
Examiner	11	hour	.65	
Packer	5	hour	.65	
6. Revenue Finishing Section				
Foreman	1	year	3,250.00	
Forewoman	1	hour	.90	
Examiner	28	hour	.65	
Perforator	18	hour	.60	
Skilled Helper	3	hour	.75	
	11	hour	.65	
	2	hour	.60	
	1	hour	.55	
Press Helper	55	hour	.55	
7. Bindery Section				
Foreman	1	year	3,000.00	
Book Binder	8	day	8.40	
Examiner	44	hour	.65	
	23	hour	.60	
Skilled Helper	5	hour	.65	
	1	hour	.60	
8. Roller Making Section				
Roller Maker	1	day	8.80	
Assistant Roller Maker	1	day	5.20	
9. Vaults and Delivery Section				
Custodian	1	year	2,800.00	
Assistant Custodian	1	year	2,500.00	
Vault Keeper	1	year	2,040.00	
Foreman, Shipping Room	1	year	1,920.00	
Skilled Helper	1	year	1,740.00	
	1	year	1,560.00	

70 BUREAU OF ENGRAVING AND PRINTING

1. Office of Director—*Continued*

1. Office of Assistant Director in Charge
of Production—*Continued*

8. Surface Printing Division—*Continued*

9. Vaults and Delivery Section—*Continued*

Vault Keeper	5	hour	.75
Assistant Vault Keeper	3	hour	.65
Skilled Helper	1	hour	.70
Laborer	2	year	1,500.00
	4	year	1,380.00

9. Ink Making Division

1. Clerical Section

Superintendent	1	year	5,600.00
Assistant to Superintendent	1	year	3,100.00
Clerk to Superintendent	1	year	1,680.00
Ink Maker	1	year	2,900.00
Physical Science Aid	1	year	1,980.00
Assistant Technologist	1	year	2,600.00

2. Ink Mixing Section

Foreman	1	hour	.90
Skilled Helper	9	hour	.65
Ink Carrier	6		

3. Ink Grinding Section

Skilled Helper	12	hour	.75
----------------	----	------	-----

4. Testing Laboratory

Assistant Chemist	1	year	2,800.00
Physical Science Aid	1	year	1,920.00
	1	year	1,620.00
Clerk-Typist	1	year	1,560.00

5. Making Whiting Balls Section

Skilled Helper (part time)	2	hour	.65
----------------------------	---	------	-----

2. Office of Assistant Director in Charge

of Administration

1. Immediate Office of Assistant
Director

Assistant Director	1	year	6,000.00
Messenger	1	year	1,440.00

2. Orders Division

1. Clerical Section

Superintendent	1	year	3,400.00
Assistant Superintendent	1	year	2,400.00

2. Currency Section

Clerk	2	year	1,800.00
	1	year	1,680.00

3. Bonds and Certificates Section

Clerk	1	year	1,920.00
-------	---	------	----------

OUTLINE OF ORGANIZATION

71

1. Office of Director— <i>Continued</i>				
2. Office of Assistant Director in Charge of Administration— <i>Continued</i>				
2. Orders Division— <i>Continued</i>				
4. Stamps Section				
Clerk	1	year	1,920.00	
5. Miscellaneous Section				
Clerk	1	year	1,920.00	
Typist	2	year	1,560.00	
Messenger	1	year	1,320.00	
3. Accounting Division				
1. Supervisory Section				
Chief Accountant	1	year	4,800.00	
Assistant Accountant	1	year	3,400.00	
Stenographer	1	year	1,920.00	
Clerk in Charge of Effi- ciency Ratings	1	year	1,920.00	
Typist	1	year	1,740.00	
2. Appropriation and Paper Con- trol Records Section				
Head of Section	1	year	3,100.00	
Assistant Head of Section	1	year	2,400.00	
Senior Statistical Clerk	1	year	2,040.00	
Clerk	1	year	1,920.00	
	4	year	1,740.00	
3. Cost Accounts Section				
Cost Accountant	1	year	2,600.00	
Clerk	3	year	2,200.00	
	1	year	1,920.00	
	3	year	1,860.00	
	2	year	1,740.00	
4. Payrolls Section				
Principal Payroll Clerk	1	year	2,400.00	
Senior Payroll Clerk	1	year	2,040.00	
Payroll Clerk	2	year	1,800.00	
	4	year	1,740.00	
Printers' Spoilage Clerk	1	year	1,920.00	
	1	year	1,680.00	
5. Timekeeping Section				
Principal Time Clerk	1	year	2,400.00	
Senior Time Clerk	1	year	1,920.00	
Time Clerk	2	year	1,800.00	
	2	year	1,740.00	
	1	year	1,380.00	

1. Office of Director— <i>Continued</i>				
2. Office of Assistant Director in Charge of Administration— <i>Continued</i>				
3. Accounting Division— <i>Continued</i>				
6. Injury Records Section				
Clerk	1	year	1,920.00	
7. Stock Control Accounts Section				
Clerk	2	year	1,740.00	
8. Messenger Section				
Messenger	1	year	1,380.00	
	1	year	1,200.00	
4. Personnel Division				
1. Personnel Section				
Superintendent	1	year	2,700.00	
Assistant	1	year	2,200.00	
2. Employment Section				
Clerk-Stenographer	1	year	1,920.00	
	1	year	1,740.00	
Typist	1	year	1,628.00	
	1	year	1,560.00	
3. Assignment Section				
Clerk	1	year	2,040.00	
	2	year	1,740.00	
	4	year	1,560.00	
5. Mails and Files Division				
1. Files Section				
Superintendent	1	year	2,200.00	
Clerk	2	year	1,620.00	
2. Mail Section				
Assistant Superintendent	1	year	1,920.00	
Messenger	2	year	1,380.00	
6. Purchase, Storage, and Issue Division				
1. Purchase Section				
Purchasing Agent	1	year	3,600.00	
Assistant Purchasing Agent	1	year	2,900.00	
Clerk	1	year	2,200.00	
	2	year	1,920.00	
	4	year	1,740.00	
	1	year	1,620.00	
	1	year	1,560.00	
Messenger	1	year	1,380.00	

OUTLINE OF ORGANIZATION

73

1.	Office of Director— <i>Continued</i>			
2.	Office of Assistant Director in Charge of Administration— <i>Continued</i>			
6.	Purchase, Storage, and Issue Division— <i>Continued</i>			
2.	Storage and Issue Section			
	Storekeeper	I	year	2,900.00
	Assistant Storekeeper	I	year	1,920.00
	Receiving Clerk	I	year	1,860.00
	Clerk	I	year	1,680.00
		7	year	1,560.00
	Clerk-Typist	I	year	1,500.00
	Helper	3	year	1,500.00
		I	hour	.70
7.	Disbursing Division			
	Disbursing Officer	I	year	3,300.00
	Assistant Disbursing Officer	I	year	2,900.00
	Clerk	2	year	1,920.00
8.	Hygienic Division			
1.	Clerical Section			
	Clerk-Typist	I	year	1,800.00
2.	Medical and Sanitary Section			
	Medical Officer	I	year	3,500.00
	Nurse	I	year	1,800.00
		I	year	1,740.00
		I	year	1,680.00
9.	Watch Division			
1.	Watchmen Section			
	Captain	I	year	1,980.00
	Lieutenant	2	year	1,620.00
	Watchman	43	year	1,380.00
		19	year	1,320.00
		12	year	1,260.00
		5	year	1,200.00
2.	Guides Section			
	Guide	12	year	1,380.00
3.	Armored Truck Guards			
	Foreman	I	hour	.85
	Assistant Foreman	I	hour	.70
	Guard	8	hour	.70
10.	Buildings and Grounds Division			
1.	Clerical Section			
	Superintendent	I	year	2,600.00
	Assistant Superintendent	I	year	1,920.00
	Clerk	I	year	1,620.00
		I	year	1,440.00

1. Office of Director— <i>Continued</i>				
2. Office of Assistant Director in Charge of Administration— <i>Continued</i>				
10. Buildings and Grounds Division— <i>Continued</i>				
2. Telephone Switchboard Section				
Operator	1	year	1,440.00	
	3	year	1,380.00	
3. Elevator Operators Section				
Foreman	1	hour	.75	
Operator	14	hour	.55	
4. Gardener Section				
Gardener	1	year	1,380.00	
5. Labor Section				
Foreman	1	year	1,620.00	
Assistant Foreman	1	year	1,620.00	
	1	year	1,440.00	
Laborer	62	year	1,140.00	
	6	year	1,080.00	
6. Char Force Section				
Forewoman	2	year	1,380.00	
Assistant Forewoman	2	year	1,320.00	
Charwoman	32	year	1,260.00	
	2	year	1,200.00	
	1	year	1,140.00	
	1	year	1,080.00	
	84	hour	.45	
7. Dressing Room Attendants Section				
Dressing Room Attendant	21	year	1,380.00	
8. Waste Paper Assorters Section				
Foreman	1	year	1,500.00	
Assorter	3	year	1,440.00	
9. Press Cleaners Section				
Leadman	9	year	1,440.00	
Press Cleaner	51	year	1,380.00	
	49	year	1,260.00	
	5	year	1,200.00	
10. Towel Laundry Section				
Foreman	1	year	2,400.00	
Laundrywoman	10	year	1,260.00	
11. Plate Vault Division				
I. Clerical Section				
Superintendent	1	year	3,100.00	
Assistant Superintendent	1	year	2,600.00	

OUTLINE OF ORGANIZATION

75

1. Office of Director— <i>Continued</i>				
2. Office of Assistant Director in Charge of Administration— <i>Continued</i>				
11. Plate Vault Division— <i>Continued</i>				
2. Storage and Issue Section				
Distributor of Stock	1	hour	.85	
	5	hour	.75	
	2	hour	.65	
	1	hour	.60	
12. Federal Reserve Vault Division				
1. Clerical Section				
Superintendent	1	year	2,500.00	
Assistant Superintendent	1	year	2,000.00	
Clerk	2	year	1,560.00	
Messenger	1	year	1,500.00	
2. Storage and Issue Section				
Helper	1	year	1,800.00	
	2	year	1,680.00	
13. Engineering and Machine Division				
1. Clerical Section				
Superintendent	1	year	4,800.00	
Assistant Superintendent	1	year	3,500.00	
Chief Clerk	1	year	2,800.00	
Clerk	3	year	1,740.00	
	1	year	1,620.00	
	1	year	1,560.00	
Stock Clerk	2	year	1,440.00	
Draftsman	1	year	2,800.00	
2. Machine Shop Section				
Foreman	3	year	3,250.00	
Machinist	53	day	8.80	
Auto Mechanic	4	day	8.40	
Machinists' Helper	26	day	6.00	
Rotary Plate Fitter	2	day	10.16	
Blacksmith	1	day	8.00	
Knife Grinder	1	day	7.60	
3. Electrical Shop Section				
Foreman	1	year	3,250.00	
Assistant Foreman	1	year	2,900.00	
Electrician	23	day	8.80	
Electricians' Helper	9	day	6.00	
Wireman	1	day	7.60	
	8	day	7.20	

76 BUREAU OF ENGRAVING AND PRINTING

1. Office of Director— <i>Continued</i>				
2. Office of Assistant Director in Charge of Administration— <i>Continued</i>				
13. Engineering and Machine Division— <i>Continued</i>				
4. Carpenter and Paint Shop Section				
Foreman	1	year	3,250.00	
Carpenter	8	day	8.80	
	1	day	7.20	
Carpenters' Helper	3	day	6.00	
Painter	6	day	8.80	
Painters' Helper	1	day	6.00	
Roller Maker	1	day	8.80	
Roller Makers' Assistant	1	day	6.72	
Lockfitter	1	day	8.80	
Lockfitters' Helper	1	day	6.00	
5. Plumbers' Shop Section				
Foreman	1	year	3,250.00	
Plumber	5	day	8.80	
	1	day	7.20	
Plumbers' Helper	4	day	6.00	
Steamfitter	1	day	7.20	
	3	day	8.80	
Tin and Sheet Metal Worker	4	day	8.80	
Acetylene Welder	1	day	8.80	
6. Rag Laundry Section				
Foreman	1	hour	.90	
Laundryman	25	hour	.65	
7. Engineers and Firemen Section				
Chief Engineer	1	year	3,150.00	
First Assistant Engineer	1	day	9.28	
Second Assistant Engineer	1	day	9.28	
Engineer	6	day	8.80	
Head Fireman	1	day	7.20	
Fireman	9	day	6.88	
Head Oiler	1	day	7.20	
Oiler	1	day	6.88	
Dynamo Tender	8	day	8.08	
Freight Handler	12	hour	.55	
8. Masonry Force Section				
Bricklayer	2	day	8.80	
Pipe Coverer	1	day	8.40	
Freight Handler	2	hour	.55	

OUTLINE OF ORGANIZATION

77

1. Office of Director— <i>Continued</i>				
2. Office of Assistant Director in Charge of Administration— <i>Continued</i>				
13. Engineering and Machine Division— <i>Continued</i>				
9. Macerator Section				
Foreman	1	hour	.85	
Skilled Helper	4	hour	.65	
	2	hour	.60	
Freight Handler	6	hour	.65	
10. Laborers Section				
Foreman	1	hour	.95	
Assistant Foreman	1	hour	.75	
Freight Handler	6	hour	.65	
	34	hour	.55	
14. Garage Division				
1. Clerical Section				
Superintendent	1	year	2,500.00	
Clerk	1	year	1,560.00	
2. Chauffeurs Section				
Dispatcher	1	year	1,440.00	
Chauffeur	21	year	1,440.00	
	2	year	1,320.00	
Chauffeur (Freight Handler)	2	year	1,440.00	
15. Press Register Division				
1. Clerical Section				
Superintendent	1	year	2,000.00	
Clerk	1	year	1,620.00	
2. Custodians Section				
Custodian	18	hour	.75	
3. Office of Mechanical Expert and Designer				
Mechanical Expert and Designer	1	year	6,000.00	
Engineering Draftsman	1	year	3,000.00	
4. Planning Unit				
Expert	1	{ Detailed from Bureau of Efficiency		

APPENDIX 2

CLASSIFICATION OF ACTIVITIES

EXPLANATORY NOTE

The Classifications of Activities in this series have for their purpose to list and classify in all practicable detail the specific activities engaged in by the several services of the national government. Such statements are of value from a number of standpoints. They furnish, in the first place, the most effective showing that can be made in brief compass of the character of work performed by the service to which they relate. Secondly, they lay the basis for a system of accounting and reporting that will permit the showing of total expenditures classified according to activities. Finally, taken collectively, they make possible the preparation of a general or consolidated statement of the activities of the government as a whole. Such a statement will reveal in detail, not only what the government is doing, but the services in which the work is being performed. It is hardly necessary to point out the value of such information in planning for future work and in considering the problem of the better distribution and coördination of the work of the government. The Institute contemplates attempting such a general listing and classification of the activities of the government upon the completion of the present series.

CLASSIFICATION OF ACTIVITIES

1. Engraving and Printing
 1. Currency
 1. United States notes
 2. Gold certificates
 3. Silver certificates
 4. National bank notes
 5. Federal Reserve notes
 6. Federal Reserve bank notes
 7. Philippine currency

1. Engraving and Printing—*Continued*
 2. Stamps
 1. United States postage stamps
 2. United States Internal Revenue stamps
 3. United States Customs stamps
 4. Philippine postage stamps
 5. Philippine postal savings stamps
 6. Philippine Internal Revenue stamps
 7. Porto Rican Internal Revenue stamps
 3. Philippine Postal Cards
 4. Securities
 1. United States bonds
 2. United States Treasury notes
 3. United States certificates of indebtedness
 4. Federal Farm Loan bonds
 5. Farm loan bonds for joint stock land banks
 6. Debentures of Federal Intermediate Credit banks
 7. Philippine bonds
 8. Porto Rican bonds
 5. Disbursing officers' checks
 6. Commissions
 7. Certificates
 8. Transportation requests
 9. Liquor permits and prescriptions
 10. Miscellaneous work
2. Maceration of Retired Currency
 3. Storage and Shipment of Postage Stamps
 4. Storage and Shipment of Internal Revenue Stamps
 5. Storage and Shipment of Federal Reserve Notes
 6. Ancillary Activities
 1. Ink making
 2. Gum making
 3. Roller making
 4. Designing of machinery
 5. Building of machinery

APPENDIX 3

PUBLICATIONS

The only publication issued regularly is the Annual Report to the Secretary of the Treasury. The first report was issued in 1864 under the title, "Report from the First Division National Currency, showing its growth, origin, and present condition." Apparently the annual reports began to be published regularly with the one for the fiscal year 1872. They have been issued in pamphlet form, and from 1885 to 1898 they also formed part of the Annual Report of the Secretary of the Treasury on the State of the Finances. During recent years the Annual Report of the Secretary of the Treasury contains only an abstract of the report of the Bureau.

Rules and regulations, compilations of laws, and pamphlets describing the work of the Bureau have been issued at irregular intervals.

APPENDIX 4

PLANT

The greater part of the work of the Bureau of Engraving and Printing is done in the building completed in 1914 for the use of the Bureau at a cost of approximately \$2,900,000. The building is on a tract extending from Fourteenth to Fifteenth Streets SW., south of B Street. It is a six-story building with 484,920 square feet of floor space. The Engraving Division occupies 42,440 square feet of floor space in the building which formerly housed the Bureau, and which is also occupied in part by the Office of the Register of the Treasury. Reserve stores are kept in a warehouse at First and L Streets NE., several miles from the Bureau, but adjacent to the Baltimore and Ohio Railroad, where 8150 square feet are rented, at a cost of \$3600 per annum.

Ink mill, laundry, or other activities occupy detached buildings, the floor space of each activity being as follows:

	Square feet
Store rooms	13,417
Ink mill	9,632
Laundry	20,207
Garage	7,793
Macerator	7,840
Boiler and engine rooms, etc.....	10,334
Carpenter, machine, paint, plumbing, etc., shops.....	13,833

The Bureau operates its own power plant, which supplies steam for heating and certain manufacturing processes, and generates a portion of the electricity used. The plant is not of sufficient capacity to produce all the electricity needed for power, and the remainder is purchased from the local electric utility company. During the fiscal year 1927 there were generated in the Bureau plant 803,573 kilowatts, and there were purchased 5,532,242 kilowatts at a cost of \$69,741.10. The coal purchased amounted to 12,000 long tons costing \$82,202.16.

APPENDIX 5

LAWS

EXPLANATORY NOTE

Only a few laws refer specifically to the Bureau of Engraving and Printing, most of the statutes relating to the notes or securities. There are given below the acts relating specifically to the engraving and printing of securities, but not the laws governing their issue, with which the Bureau has nothing to do. There are also laws prohibiting the private possession of plates and dies of money and securities; as these are general criminal statutes they are omitted from the compilation.

(A) INDEX TO LAWS

Activities

Custody of Federal Reserve notes.....	38 Stat. L., 267
Custody of plates and dies	

Federal Reserve notes.....	38 Stat. L., 267
National bank notes.....	R. S., Sec. 5173

Destruction of notes

Currency in general.....	18 Stat. L., 206
Federal Reserve notes.....	38 Stat. L., 266

Engraving and printing

Debentures of Federal Intermediate Credit banks.....	42 Stat. L., 1456
Federal Farm Loan bonds.....	39 Stat. L., 377

Federal Reserve notes.....	38 Stat. L., 267
National bank notes.....	R. S., Sec. 5172

18 Stat. L., 124, 372	
Portraits of deceased members of Congress.....	28 Stat. L., 617

41 Stat. L., 1431	
-------------------	--

Postage stamps	32 Stat. L., 117
----------------------	------------------

United States notes.....	R. S., Sec. 3577
--------------------------	------------------

Printing impressions from portraits.....	21 Stat. L., 59
--	-----------------

Administration

Delivery of plates of portraits of deceased members of Congress	39 Stat. L., 275
---	------------------

39 Stat. L., 275	
------------------	--

Estimates for money order printing.....	22 Stat. L., 527
---	------------------

Examination and destruction of plates for national banks.....	R. S., Sec. 5174
---	------------------

Examination of plates of Federal Reserve notes.....	38 Stat. L., 267
---	------------------

Printing from power presses.....	42 Stat. L., 1099
----------------------------------	-------------------

Use of portraits of living persons forbidden.....	R. S., Sec. 3576
---	------------------

Work not to be done for private parties.....	15 Stat. L., 312
--	------------------

Appropriations

For fiscal year 1929.....	45 Stat. L., 172
<i>Charges for work</i>	
Engravings for eulogies of deceased members of Congress.....	28 Stat. L., 617 41 Stat. L., 1431
Federal Reserve notes.....	38 Stat. L., 267
Internal revenue stamps.....	45 Stat. L., 172
Miscellaneous work	45 Stat. L., 172
National bank notes.....	18 Stat. L., 124 45 Stat. L., 172
Receipts to be added to appropriations.....	45 Stat. L., 172
Receipts to be deposited in Treasury.....	24 Stat. L., 227
Restriction on cost of postage stamps.....	34 Stat. L., 475
United States currency.....	45 Stat. L., 172

Personnel

Leave of absence.....	27 Stat. L., 87
Officers and employees authorized.....	R. S., Sec. 3577
Payment of wages for holidays.....	23 Stat. L., 516 24 Stat. L., 644 28 Stat. L., 96
Wages fixed by Secretary of Treasury.....	45 Stat. L., 172

Powers and duties

Secretary of the Treasury.....	R. S., Sec. 3577
--------------------------------	------------------

(B) COMPILATION OF LAWS

R. S., Sec. 3576.—Portraits of living persons [Act of April 7, 1866, 14 Stat. L., 25].

SEC. 3576. No portrait shall be placed upon any of the bonds, securities, notes, fractional or postal currency of the United States, while the original of such portrait is living.

R. S., Sec. 3577.—Engraving and printing notes [Act of July 11, 1862, 12 Stat. L., 532].

SEC. 3577. The Secretary of the Treasury may cause notes to be engraved, printed, and executed, at the Department of the Treasury in Washington, and under his direction, if he deems it inexpedient to procure them to be engraved and printed by contract; and he may purchase and provide all the machinery and materials, and employ such persons and appoint such officers as are necessary for this purpose.

R. S., Sec. 5172, as amended March 3, 1919 (40 Stat. L., 1315)—
Printing of national bank notes.

SEC. 5172. That in order to furnish suitable notes for circulation, the Comptroller of the Currency shall, under the direction of the Secretary of the Treasury, cause plates and dies to be engraved, in the best manner to guard against counterfeiting and fraudulent alterations, and shall have

84 BUREAU OF ENGRAVING AND PRINTING

printed therefrom and numbered such quantity of circulating notes in blank, or bearing engraved signatures of officers as herein provided, of the denominations of \$1, \$2, \$5, \$10, \$20, \$50, \$100, \$500, and \$1,000, as may be required to supply the associations entitled to receive the same. Such notes shall express upon their face that they are secured by United States bonds deposited with the Treasurer of the United States, by the written or engraved signatures of the Treasurer and Register, and by the imprint of the seal of the Treasury; and shall also express upon their face the promise of the association receiving the same to pay on demand, attested by the written or engraved signatures of the president or vice president and cashier; and shall bear such devices and such other statements and shall be in such form as the Secretary of the Treasury shall, by regulation, direct.

R. S., Sec. 5173.—Custody of dies and plates of national bank notes; payment of expenses [Act of June 3, 1864, 13 Stat. L., 111].¹

SEC. 5173. The plates and special dies to be procured by the Comptroller of the Currency for the printing of such circulating notes shall remain under his control and direction, and the expenses necessarily incurred in executing the laws respecting the procuring of such notes, and all other expenses of the Bureau [Office of Comptroller] of the Currency, shall be paid out of the proceeds of the taxes or duties assessed and collected on the circulation of national banking associations under this Title [LXII, Rev. Stat.].

R. S., Sec. 5174.—Examination and destruction of plates for national banknotes, etc.—[Act of March 3, 1873].

SEC. 5174. The Comptroller of the Currency shall cause to be examined, each year, the plates, dies, bed pieces, and other material from which the national-bank circulation is printed, in whole or in part, and file in his office annually a correct list of the same. Such material as shall have been used in the printing of the notes of associations which are in liquidation, or have closed business, shall be destroyed under such regulations as shall be prescribed by the Comptroller of the Currency and approved by the Secretary of the Treasury. The expenses of any such examination or destruction shall be paid out of any appropriation made by Congress for the special examination of national banks and banknote plates.

R. S., Sec. 5184—Destruction of national bank notes unfit for use [Act of June 3, 1864; 13 Stat. L., 106].

SEC. 5184. It shall be the duty of the Comptroller of the Currency to receive worn-out or mutilated circulating notes issued by any banking association [national bank], and also, on due proof of the destruction of any such circulating notes, to deliver in place thereof to the association other blank circulating notes to an equal amount. Such worn-out or mutilated

¹ Recent appropriation acts have provided for the paying the expense of printing out of the appropriations to the Bureau. The act of June 20, 1874 (18 Stat. L., 124), provides for payment of cost of engraving by the banks.

notes, after a memorandum has been entered in the proper books, in accordance with such regulations as may be established by the Comptroller, as well as all circulating notes which shall have been paid or surrendered to be canceled, shall be burned to ashes in presence of four persons, one to be appointed by the Secretary of the Treasury, one by the Comptroller of the Currency, one by the Treasurer of the United States, and one by the association, under such regulations as the Secretary of the Treasury may prescribe. A certificate of such burning, signed by the parties so appointed, shall be made in the books of the Comptroller, and a duplicate thereof forwarded to the association whose notes are thus canceled.²

1869—Act of March 3, 1869 (15 Stat. L., 312).—Work not to be done for private parties.

* * * *

. . . That no work shall be done in the engraving and printing bureau for private parties.

1874—Act of June 20, 1874 (18 Stat. L., 124).—Charter numbers on national bank notes.

* * * *

SEC. 5. That the Comptroller of the Currency shall, under such rules and regulations as the Secretary of the Treasury may prescribe, cause the charter-numbers of the association [national bank] to be printed upon all national-bank notes which may be hereafter issued by him.

1874—Act of June 20, 1874 (18 Stat. L., 124).—Cost of engraving plates for national banks.³

* * * *

SEC. 3. . . . That each of said associations [national banks] shall reimburse to the Treasury the charges for transportation, and the costs for assorting such notes; and the associations [national banks] hereafter organized shall also severally reimburse to the Treasury the cost of engraving such plates as shall be ordered by each association [national bank] respectively. . . .

1874—Act of June 23, 1874 (18 Stat. L., 206).—Maceration of currency unfit for use.

* * * *

For the purchase of an engine and machinery, and for the erection and expenses incident to its operation, for the maceration of national bank notes, United States notes, and other obligations of the United States authorized to be destroyed, ten thousand dollars; and that all such issues hereafter destroyed may be destroyed by maceration instead of burning to ashes, as now provided by law; and that so much of sections twenty-four and forty-three of the national-currency act [Secs. 5184 and 5225, R. S.] as requires national bank

² Maceration instead of burning authorized by act of June 23, 1874 (18 Stat. L., 206).

³ Modifies, but does not specifically amend, Section 5173, R. S.

86 BUREAU OF ENGRAVING AND PRINTING

notes to be burned to ashes is hereby repealed; that the pulp from such macerated issue shall be disposed of only under the direction of the Secretary of the Treasury.

1875—Act of March 3, 1875 (18 Stat. L., 372).—Printing of national bank notes.

* * * *

. . . That the national-bank notes shall be printed under the direction of the Secretary of the Treasury, and upon the distinctive or special paper which has been, or may hereafter be, adopted by him for printing United States notes.

1879—Act of December 22, 1879 (21 Stat. L., 59).—Printing impressions from portraits.

That the Secretary of the Treasury at the request of a Senator, Representative, or Delegate in Congress, the head of a department or bureau, art association, or library, be, and he is hereby authorized to furnish impressions from any portrait or vignette which is now, or may hereafter be, a part of the engraved stock of the Bureau of Engraving and Printing, at such rates and under such conditions as he may deem necessary to protect the public interests.⁴

1883—Act of March 3, 1883 (22 Stat. L., 527).—Estimates for money order printing.

* * * *

SEC. 2. . . . And all blanks, blank-books, and printed or engraved matter supplied to postmasters by the Postmaster-General or used in his department for the transaction of the money-order business shall be obtained from the lowest responsible bidders for furnishing printed and engraved matter, respectively, under separate advertisements calling for proposals to furnish the same for a period of four years, upon such conditions as the Postmaster-General may prescribe: *Provided*, That the Public Printer and the Chief of the Bureau of Engraving and Printing of the Treasury Department shall submit, respectively, estimates of the cost of furnishing such printed and engraved matter as may be required for use in the money-order business, and they shall furnish such printed and engraved matter whenever upon their estimates of cost the expenditure therefor will be less than upon proposals made as above provided for.

⁴ The following order to the Director of the Bureau was issued by the Secretary of the Treasury on January 24, 1888: "In view of the frequent requests for the printing by your bureau of portraits and engravings for use in the preparation of publications under other than government auspices, and for other private purposes; and the serious interruption to the regular work of your bureau entailed thereby, I deem that the public interests will be subserved by a discontinuance of the practice which has prevailed of furnishing them, and, direct that, hereafter, only such portraits and engravings as may be required for the use of the Government be printed."

1885—Joint resolution of January 6, 1885 (23 Stat. L., 516).—Payment to per diem employees for holidays.

That the employees of the Navy Yard, Government Printing Office, Bureau of Printing and Engraving, and all other per diem employees of the Government on duty at Washington, or elsewhere in the United States, shall be allowed the following holidays, to wit: the first day of January, the twenty-second day of February, the fourth day of July, the twenty-fifth day of December, and such days as may be designated by the President as days for national thanksgiving, and shall receive the same pay as on other days.⁸

1886—Act of August 4, 1886 (24 Stat. L., 227).—Receipts from miscellaneous work to be deposited in Treasury.

* * * *

. . . That hereafter receipts for miscellaneous work authorized by law to be performed by the Bureau of Engraving and Printing for the several Departments of the Government, and the amounts properly chargeable to national banks for engraving their plates shall be deposited, and covered into the Treasury as miscellaneous receipts.⁹

1887—Joint Resolution of February 27, 1887 (24 Stat. L., 644).—Payment to per diem employees for holidays.

That all per diem employees of the Government, on duty at Washington or elsewhere in the United States, shall be allowed the day of each year, which is celebrated as "Memorial" or "Decoration Day" and the fourth of July of each year, as holiday, and shall receive the same pay as on other days.

1892—Act of July 6, 1892 (27 Stat. L., 87).—Leave of absence.

That the employees of the Bureau of Engraving and Printing, including the pieceworkers, shall be allowed leave of absence with pay, not exceeding thirty days in any one year, under such regulations and at such time or times as the Chief of the Bureau, with the approval of the Secretary of the Treasury, may prescribe and designate: *Provided*, That the length of the leave of absence of any employee of said Bureau doing piecework, and the pay during such leave of absence, shall be determined by the average amount of work done by such person and the pay therefor during the several months of the year.

1894—Act of June 28, 1894 (28 Stat. L., 96).—Labor Day made legal holiday.

That the first Monday of September in each year, being the day celebrated and known as Labor's Holiday, is hereby made a legal public holiday, to all

⁸ Extended to Decoration Day by joint resolution of February 23, 1887 (24 Stat. L., 644), and to Labor Day by act of June 28, 1894 (28 Stat. L., 96).

⁹ By a proviso in each annual appropriation act, these receipts are added to the appropriation and are available for expenditure.

88 BUREAU OF ENGRAVING AND PRINTING

intents and purposes, in the same manner as Christmas, the first day of January, the twenty-second day of February, the thirtieth day of May, and the fourth day of July are now made by law public holidays.

1895—Act of January 12, 1895 (28 Stat. L., 617).—Engravings for eulogies of deceased members of Congress.

* * * *

SEC. 73. . . . The engraving for such eulogies [of deceased Senators, Representatives, and Delegates] shall be done at the Bureau of Engraving and Printing and paid for out of the appropriation for that Bureau.⁷

1902—Act of April 21, 1902 (32 Stat. L., 117).—Engraving and printing postage stamps.⁸

* * * *

. . . That hereafter, when in the opinion of the Postmaster General the interests of the Post Office Department require it, the manufacturing of special-delivery and adhesive postage stamps may be done by the Treasury Department (Bureau of Engraving and Printing), in conformity with an agreement satisfactory to both the Postmaster-General and the Secretary of the Treasury.

1906—Act of June 26, 1906 (34 Stat. L., 475).—Restriction on contract for stamps.

* * * *

. . . That no contract for the manufacture of adhesive postage stamps, special-delivery stamps, or books of stamps shall be made by the Government [Post-office Department] with any Department or Bureau of the Government below the cost of such work to the Government.

1913—Act of December 23, 1913 (38 Stat. L., 267), as amended by act of September 26, 1918 (40 Stat. L., 970).—Printing and form of Federal Reserve notes.

* * * *

SEC. 16. . . . In order to furnish suitable notes for circulation as Federal Reserve notes, the Comptroller of the Currency shall, under the direction of the Secretary of the Treasury, cause plates and dies to be engraved in the best manner to guard against counterfeits and fraudulent alterations, and shall have printed therefrom and numbered such quantities of such notes of the denominations of \$5, \$10, \$20, \$50, \$100, \$500, \$1,000, \$5,000, \$10,000 as may be required to supply the Federal reserve banks. Such notes shall be in form and tenor as directed by the Secretary of the Treasury under the provisions of this Act and shall bear the distinctive numbers of the several Federal reserve banks through which they are issued.

⁷ See also acts of July 1, 1916, and March 4, 1921.

⁸ Postage stamps had been made by the Bureau since the beginning of the fiscal year 1895.

1913—Act of December 23, 1913 (38 Stat. L., 267).—Payment for engraving and printing Federal Reserve notes.

* * * *

SEC. 16.

* * * *

Any appropriation heretofore made out of the general funds of the Treasury for engraving plates and dies, the purchase of distinctive paper, or to cover any other expense in connection with the printing of national-bank notes or notes provided for by the Act of May thirtieth, nineteen hundred and eight, and any distinctive paper that may be on hand at the time of the passage of this Act may be used in the discretion of the Secretary for the purposes of this Act, and should the appropriations heretofore made be insufficient to meet the requirements of this Act in addition to circulating notes provided for by existing law, the Secretary is hereby authorized to use so much of any funds in the Treasury not otherwise appropriated for the purpose of furnishing the notes aforesaid: *Provided, however,* That nothing in this section contained shall be construed as exempting national banks or Federal Reserve Banks from their liability to reimburse the United States for any expenses incurred in printing and issuing circulating notes.

1913—Act of December 23, 1913 (38 Stat. L., 267).—Custody of plates of Federal Reserve notes.

* * * *

SEC. 16.

* * * *

The plates and dies to be procured by the Comptroller of the Currency for the printing of such circulating notes shall remain under his control and direction, and the expenses necessarily incurred in executing the laws relating to the procuring of such notes, and all other expenses incidental to their issue and retirement, shall be paid by the Federal reserve banks, and the Federal Reserve Board shall include in its estimate of expenses levied against the Federal reserve banks a sufficient amount to cover the expenses herein provided for.

1913—Act of December 23, 1913 (38 Stat. L., 267).—Examination of plates and dies for Federal Reserve notes.

* * * *

SEC. 16.

* * * *

The examination of plates, dies, bed pieces, and so forth, and regulations relating to such examination of plates, dies, and so forth, of national-bank notes provided for in section fifty-one hundred and seventy-four Revised Statutes, is hereby extended to include notes herein provided for.

90 BUREAU OF ENGRAVING AND PRINTING

1913—Act of December 23, 1913 (38 Stat. L., 267).—Custody of Federal Reserve notes.

* * * *

SEC. 16.

* * * *

When such notes have been prepared, they shall be deposited in the Treasury, or in the subtreasury or mint of the United States nearest the place of business of each Federal reserve bank and shall be held for the use of such bank subject to the order of the Comptroller of the Currency for their delivery, as provided by this Act.

1913—Act of December 23, 1913 (38 Stat. L., 266) as amended by act of June 21, 1917 (40 Stat. L., 237).—Destruction of Federal Reserve notes unfit for circulation.

* * * *

SEC. 16.

* * * *

. . . Federal Reserve notes unfit for circulation shall be returned by the Federal Reserve agents to the Comptroller of the Treasury . . . for cancellation and destruction.

1916—Act of July 1, 1916 (39 Stat. L., 275).—Delivery of plates of portraits of deceased Congressmen.

* * * *

The Secretary of the Treasury is authorized to deliver the engraved plates of portraits that have been or may hereafter be made of deceased Senators and Representatives in Congress, to their heirs or legal representatives on such terms and conditions as he may determine.

1916—Act of July 17, 1916 (39 Stat. L., 377).—Farm Loan Bonds.

* * * *

SEC. 20.

* * * *

In order to furnish farm loan bonds for delivery at the Federal land banks and joint stock land banks, the Secretary of the Treasury is hereby authorized to prepare suitable bonds in such form, subject to the provisions of this Act, as the Federal Farm Loan Board may approve, such bonds when prepared to be held in the Treasury subject to delivery upon order of the Federal Farm Loan Board. The engraved plates, dies, bed-pieces, and so forth, executed in connection therewith shall remain in the custody of the Secretary of the Treasury. Any expenses incurred in the preparation, custody, and delivery of such farm loan bonds shall be paid by the Secretary of the Treasury from any funds in the Treasury not otherwise appropriated: *Provided, however,* That the Secretary shall be reimbursed for such expenditures by the Federal Farm Loan Board through assessment upon the farm land banks in proportion

of the work executed. They may be exchanged into registered bonds of any amount, and reexchanged into coupon bonds, at the option of the holder, under rules and regulations to be prescribed by the Federal Farm Loan Board.

1921—Act of March 4, 1921 (41 Stat. L., 1431).—Engravings for eulogies of deceased members of Congress.

* * * *

The illustrations to accompany bound copies of memorial addresses delivered in Congress shall be made at the Bureau of Engraving and Printing and paid for out of the appropriation for that bureau, or, in the discretion of the Joint Committee on Printing, shall hereafter be obtained elsewhere by the Public Printer and charged to the allotment for printing and binding for Congress.

1923—Act of January 3, 1923 (42 Stat. L., 1099).—Printing from power presses.

* * * *

Hereafter the Secretary of the Treasury is authorized to print from plates of more than four subjects each upon power presses the fronts and backs of any paper money, bonds, or other printed matter now or hereafter authorized to be executed at the Bureau of Engraving and Printing; and the Secretary shall, in the exercise of the authority conferred upon him by this paragraph, reduce the number of persons employed in the operation of plate-printing presses by not less than two hundred and eighteen.

1923—Act of March 4, 1923 (42 Stat. L., 1456).—Debentures of Federal Intermediate Credit Banks.

* * * *

SEC. 203.

* * * *

(b) The provisions of Title I relating to the preparation and issue of farm loan bonds shall, so far as applicable, govern the preparation and issue of debentures or other such obligations issued under this section; but the Federal Farm Loan Board shall prescribe rules and regulations governing the receipt, custody, substitution, and release of collateral instruments securing such debentures or other obligations, the right of substitution being hereby granted. Rates of interest upon debentures and other such obligations issued under this section shall, subject to the approval of the Federal Farm Loan Board, be fixed by the Federal Intermediate Credit Bank making the issue, not exceeding 6 per centum per annum.⁹

1928—Act of March 5, 1928 (45 Stat. L., 172).—An Act making appropriations for the Treasury and Post Office Departments for the fiscal year ending June 30, 1929, and for other purposes.

* * * *

⁹This act amends the Federal Farm Loan Act of July 17, 1916 (39 Stat. L., 377); by this act the original Federal Farm Loan Act became Title I of the amended act.

BUREAU OF ENGRAVING AND PRINTING

Office of Director: For the Director, two Assistant Directors, and other personal services in the District of Columbia in accordance with "The Classification Act of 1923," \$511,495.

For the work of engraving and printing, exclusive of repay work, during the fiscal year 1929, of not exceeding 205,000,000 delivered sheets of United States currency and national-bank currency, 92,404,974 delivered sheets of internal revenue stamps, 2,494,167 delivered sheets of withdrawal permits, 674,000 delivered sheets of opium orders and special-tax stamps required under the Act of December 17, 1914, and 7,555,043 delivered sheets of checks, drafts, and miscellaneous work, as follows:

For salaries of all necessary employees, other than employees required for the administrative work of the bureau of the class provided for and specified in the Treasury Department Appropriation Act for the fiscal year 1928, and plate printers and plate printers' assistants, to be expended under the direction of the Secretary of the Treasury, \$3,111,700.

For wages of rotary press plate printers, at per diem rates, and all other plate printers at piece rates to be fixed by the Secretary of the Treasury, not to exceed the rates usually paid for such work, including the wages of printers' assistants, when employed, \$1,634,600, to be expended under the direction of the Secretary of the Treasury.

For engravers' and printers' materials and other materials, including distinctive and nondistinctive paper, except distinctive paper for United States currency, national-bank currency, and Federal reserve bank currency; equipment of, repairs to, and maintenance of buildings and grounds and for minor alterations to buildings; directories, technical books, and periodicals, and books of reference, not exceeding \$300; rent of warehouse in the District of Columbia; traveling expenses not to exceed \$2,000; equipment, maintenance, and supplies for the emergency room for the use of all employees in the Bureau of Engraving and Printing who may be taken suddenly ill or receive injury while on duty; miscellaneous expenses, including not to exceed \$1,500 for articles approved by the Secretary of the Treasury as being necessary for the protection of the person of employees; and for purchase, maintenance, and driving of necessary motor-propelled and horse-drawn passenger-carrying vehicles, when, in writing, ordered by the Secretary of the Treasury, \$950,000, to be expended under the direction of the Secretary of the Treasury.

During the fiscal year 1929 all proceeds derived from work performed by the Bureau of Engraving and Printing, by direction of the Secretary of the Treasury, not covered and embraced in the appropriation for said bureau for the said fiscal year, instead of being covered into the Treasury as miscellaneous receipts, as provided by the Act of August 4, 1886 (Twenty-fourth Statutes, page 227), shall be credited when received to the appropriation for said bureau for the fiscal year 1929.

* * * *

APPENDIX 6

FINANCIAL STATEMENT

EXPLANATORY NOTE

Statements showing appropriations, receipts, expenditures, and other financial data for a series of years constitute the most effective single means of exhibiting the growth and development of a service. Due to the fact that Congress has adopted no uniform plan of appropriations for the several services and that the latter employ no uniform plan in respect to the recording and reporting of their receipts and expenditures, it is impossible to present data of this character according to any standard scheme of presentation. In the case of some services the administrative reports contain tables showing financial conditions and operations of the service in considerable detail; in others financial data are almost wholly lacking. Careful study has in all cases been made of such data as are available, and the effort has been made to present the results in such a form as will exhibit the financial operations of the services in the most effective way that circumstances permit.

The tables herewith show expenditures only, as a large part of the expenses of the Bureau is paid from appropriations made to other services and transferred to the credit of the appropriations of the Bureau. The appropriations made directly to the Bureau have furnished the working capital for its operation, the amounts paid by other services being distributed to the credit of the several appropriation items.

The expenditures do not include the cost of distinctive paper for United States currency and national bank currency, as this paper is purchased by the Treasury Department and paid for from a special appropriation for that purpose. The cost of paper for Federal Reserve notes is included in the expenditures, as the Bureau reimburses the Treasury Department for the cost of this paper; and is in turn reimbursed by the Federal Reserve Board for the total cost of the notes.

In the table showing expenditures by appropriations the item for "new machinery and equipment" is shown only when there was a special appropriation for that purpose. In other years machinery and equipment were purchased from the appropriation for "materials and miscellaneous expenses."

The item "increase of compensation" is for the so-called bonus given at a uniform rate to employees of all departments and establishments for the fiscal years 1918 to 1924, inclusive. For the fiscal year 1918 it was 10 per cent of the annual salary of employees receiving less than \$1200, and 5 per cent for employees receiving not less than \$1200 and not more than \$1800. For the fiscal year 1919 it was a flat rate of \$120 a year for all employees receiving a total annual compensation of \$2500 or less, but employees with salaries between \$2500 and \$2620 received a bonus sufficient to give them a total salary of \$2620, and employees with salaries under \$400 received bonuses of 30 per cent of their respective salaries. For the fiscal years 1920 to 1924 inclusive it was a flat rate of \$240 a year for all employees receiving a total annual compensation of \$2500 or less, but employees receiving between \$2500 and \$2740 were given a bonus sufficient to give them a total salary of \$2740, and employees with salaries under \$400 received bonuses of 60 per cent of their respective salaries.

The table showing expenditures by services shows the items paid from Bureau appropriations, the items paid from appropriations to other services, and the items which are reimbursed to the United States and which do not constitute a charge against the national treasury. The cost of printing national bank notes is also in reality paid to the United States, as the general expenses of operating the national bank system are more than met by the tax on the circulation of notes. For accounting purposes, however, the cost of these notes is a charge against the Bureau appropriations.

The work for the Post Office Department consists mostly of printing stamps, but it includes comparatively small sums for postal savings certificates and other work. The expenditures for the Public Debt Service include the cost of engraving and printing bonds and other evidences of the national debt; prior to the fiscal year 1916 the cost of this work was met from the appropriations for the Bureau.

The item "miscellaneous engraving, services, and material" represents the engraving and printing of small jobs for various departments, the furnishing of material from the stock of the Bureau, and miscellaneous mechanical work which the Bureau is especially equipped to do. During recent years it has also included the cost of telephones of other services connected with the Bureau switchboard and charges for electric current.

In addition to the appropriations expended by the Bureau it shares in the general appropriations made to the Treasury Department for printing and binding and for stationery. The printing covered by the department appropriation is for ordinary printing from type. The expenditures during recent years have been as follows:

*Expenditures for Printing and Binding and for Stationery,
Fiscal Years 1910, 1915 to 1928*

Fiscal year	Printing and binding	Stationery
1910.....	\$7,631.46	\$2,404.13
1915.....	5,627.39	3,697.55
1916.....	4,502.42	4,254.21
1917.....	4,636.02	4,531.48
1918.....	7,081.26	8,740.09
1919.....	8,396.97	8,998.83
1920.....	10,240.09	8,106.82
1921.....	9,169.98	12,735.50
1922.....	6,573.91	6,676.85
1923.....	9,110.12	6,829.47
1924.....	6,741.10	5,595.07
1925.....	7,500.17	6,192.02
1926.....	5,454.77	7,863.68
1927.....	7,185.81	8,227.46
1928.....	5,723.40	6,924.79

BUREAU OF ENGRAVING AND PRINTING
EXPENDITURES, BY APPROPRIATION ITEMS, FOR SELECTED FISCAL YEARS, 1885 TO 1928

Appropriations	1885	1895	1905	1910	1915	1916
Salaries:						
Administrative employees	\$24,986.90	\$17,290.35	\$17,753.20	\$207,112.37	\$234,483.20	\$236,398.43
Plate printers and assistants	30,704.22	566,054.39	1,315,795.59	1,834,704.57	2,083,006.76	1,944,498.80
Custodian of dies, rolls and plates	7,741.45	.....	.....	.....	8,366.99	8,400.00
Special witness for destruction of securities	1,490.00	.....	.....	.....	.....	.....
Other employees	446,776.30	548,067.20	1,330,320.71	1,637,792.36	1,983,101.98	1,840,996.56
Rent	153,442.60	306,087.22	627,738.56	695,676.27	802,461.68	1,036,484.93
Materials and miscellaneous expenses .....	.....	.....	.....	.....	.....	.....
Total	\$905,195.47	\$1,439,265.94	\$3,202,217.06	\$4,375,355.57	\$5,039,204.80	\$5,066,048.72
Appropriations	1917	1918	1919	1920	1921	1922
Salaries:						
Administrative employees	\$229,853.04	\$216,810.46	\$214,849.83	\$255,327.63	\$242,115.80	\$237,166.54
Plate printers and assistants	2,205,177.90	2,466,067.05	2,974,743.00	3,024,924.92	3,448,042.58	2,994,919.34
Custodian of dies, rolls and plates	8,400.00	.....	8,283.33	.....	.....	.....
Other employees	2,113,437.73	3,181,702.06	4,340,236.72	4,223,939.30	4,872,792.91	4,216,543.21
Increased compensation	1,767,250.05	3,560,641.25	755,510.62	1,445,726.18	1,470,251.63	1,246,543.34
Materials and miscellaneous expenses .....	.....	2,358,053.08	3,277,502.60	2,904,253.42	3,920,030.07	2,117,505.91
Total	\$6,324,118.70	\$9,086,393.90	\$11,571,061.10	\$11,854,171.45	\$13,965,235.37	\$10,812,756.38
Appropriations	1923	1924	1925	1926	1927	1928
Salaries:						
Administrative employees	\$26,032.42	\$118,047.99	\$419,039.69	\$453,184.02	\$465,083.19	\$464,270.19
Plate printers and assistants	2,470,947.91	1,243,76	2,204,510.85	2,407,050.85	2,407,050.88	2,307,153.04
Other employees	3,822,317.05	4,056,922.80	5,088,226.93	5,239,065.05	5,238,613.16	5,207,373.70
Increased compensation	1,100,203.61	1,040,713.13	2,148,902.06	2,305,975.03	2,244,995.99	1,756,198.88
Materials and miscellaneous expenses	1,994,931.57	2,100,117.98	.....	50,766.26	.....	.....
New machinery and equipment	4,197,874.82	.....	120,777.93	.....	.....	.....
Total	\$10,166,320.28	\$4,401,925.68	\$10,041,457.46	\$10,433,674.68	\$10,415,742.44	\$9,734,996.41

FINANCIAL STATEMENT

97

EXPENDITURES, BY SERVICES, FOR SELECTED FISCAL YEARS, 1885 TO 1928

Services or products	1885	1895	1905	1910	1915	1916
Paid from Bureau appropriations—United States currency; national bank currency; internal revenue stamps; prohibition and narcotic orders and permits; customs stamps; and miscellaneous...	\$482,659.60	\$1,128,512.79	\$2,883,888.45	\$3,093,427.68	\$3,199,482.78	\$3,992,981.52
Paid from other appropriations:						
Post Office Department.....	\$107,699.78	\$381,933.46	\$602,540.17	\$770,991.88	\$784,152.70	\$1,153.55
Public Debt Service.....	.....	.....	.....	.....	.....	1,155.78
Veterans' Bureau .....	.....	.....	.....	.....	.....	147.05
State Department .....	.....	.....	43.27	17.95	368.34	.....
Government Printing Office.....	.....	.....	.....	.....	422,911.13	.....
Prohibition Unit .....	.....	.....	.....	79.93	31,511.45	.....
Emergency currency .....	.....	.....	.....	.....	.....	.....
Restricting sale of opium.....	.....	.....	.....	.....	.....	.....
Treasury notes	108,043.87	.....	.....	.....	.....	.....
Internal revenue stamps.....	.....	.....	.....	.....	.....	.....
Employees detailed.....	.....	.....	.....	.....	.....	.....
Miscellaneous engraving, services, and material....	51,201.95	5,069.50	4,697.76	42,511.38	2,062.52	2,635.44
Total	\$389,385.87	\$310,753.15	\$394,166.00	\$656,129.61	\$1,227,845.32	\$800,037.52
Reimbursed to the United States:						
Comptroller of the Currency.....	\$92,950.00	a	.....	.....	.....	.....
Federal Reserve Board.....	.....	.....	.....	.....	\$41,600.00	\$33,205.00
Federal Farm Loan Board.....	.....	.....	.....	.....	551,297.84	209,233.63
Philippine Islands .....	.....	.....	\$7,956.11	.....	15,864.46	27,387.76
Porto Rico .....	.....	.....	.....	1,372.15	2,812.40	675.89
Employees detailed .....	.....	.....	6,206.50	.....	.....	12,527.40
Miscellaneous engraving, services, and material....	.....	.....	.....	1.55	24.00	.....
Total	\$92,950.00	.....	\$14,162.61	\$25,808.28	\$61,866.70	\$273,099.68
Grand total	\$965,105.47	\$1,439,205.94	\$3,292,217.06	\$4,375,365.57	\$5,039,244.80	\$5,066,048.72

* Expenditure for this work charged to Bureau appropriations and proceeds deposited to credit of miscellaneous receipts.

EXPENDITURES, BY SERVICES, FOR SELECTED FISCAL YEARS, 1885 TO 1928—Continued

Services or products	1917	1918	1919	1920	1921	1922
Paid from Bureau appropriations—United States currency; national bank currency; internal revenue stamps; prohibition and narcotic orders and permits; customs stamps; and miscellaneous...	\$4,400,931.42	\$4,632,209.51	\$5,368,431.22	\$7,204,033.66	\$6,462,402.14	\$6,649,410.21
Paid from other appropriations:						
Post Office Department.....	\$61,766.31	\$1,060,576.05	\$1,369,815.60	\$1,264,915.85	\$1,482,161.45	\$1,382,113.52
Public Debt Service.....	89,544.12	1,992,402.87	2,131,931.20	1,508,544.02	1,393,194.27	174,492.90
Veterans' Bureau	704.24	5,026.16	4,902.40	12,670.92	11,400.75	34.84
State Department	657.23	232.37	593.64	596.47	3,866.79	1,970.21
Government Printing Office.....	.....	.....	.....	.....	3,867.87	573.23
Prohibition Unit .....	.....	9,183.46	50,817.07	27,812.75	24,210.16	7,911.60
Employees detailed	11,708.10	4,280.56	21,200.42	17,686.53	21,580.93	20,236.92
Miscellaneous engraving, services, and material.....	.....	.....	.....	.....	.....	.....
Total	\$1,064,380.00	\$3,071,701.41	\$3,579,239.42	\$2,832,234.34	\$2,913,670.03	\$1,666,380.09
Reimbursed to the United States:						
Comptroller of the Currency.....	\$21,660.00	\$37,026.75	\$28,530.00	\$81,620.00	\$1,25,020.00	\$88,743.00
Federal Reserve Board.....	74,379.26	1,217,285.34	2,401,347.71	2,082,979.08	4,342,451.51	2,311,839.18
Federal Farm Loan Board	1,114.05	44,353.56	68,833.21	39,766.93	19,342.68	72,666.41
Philippine Islands	60,454.73	80,700.15	105,080.86	74,902.92	50,660.59	50,660.59
Porto Rico	1,193.71	5,522.07	8,616.53	9,182.28	12,061.17	13,098.58
Employees detailed .....	.....	.....	.....	.....	.....	.....
Miscellaneous	4.91	415.11	300.20	125.94	235.47	64.32
Total	\$88,807.26	\$1,382,302.98	\$2,623,515.40	\$2,288,812.27	\$4,586,161.40	\$2,536,966.08
Grand total	\$6,324,118.70	\$9,086,393.90	\$11,571,186.10	\$12,355,080.27	\$13,965,233.57	\$10,812,796.38

FINANCIAL STATEMENT

99

EXPENDITURES, BY SERVICES, FOR SELECTED FISCAL YEARS, 1885 TO 1928—Concluded

Services or products	1923	1924	1925	1926	1927	1928
Paid from Bureau appropriations—United States currency; national bank currency; Internal revenue stamps; prohibition and narcotic orders and permits; customs stamps; and miscellaneous....	\$6,293,143.01	\$6,752,402.27	\$7,144,972.76	\$7,149,946.98	\$6,856,853.53	
Paid from other appropriations:						
Post Office Department.....	\$1,480,707.17	\$1,510,817.56	\$1,722,053.31	\$1,640,765.38	\$1,463,013.50	\$1,418,938.82
226,015.17	72,999.95	56,592.54	71,858.77	97,205.76	45,604.79	8,944.28
3,274.38	657.82	149,218.17	7,511.30	4,229.81		
8,850.03	10,486.49	12,999.06	6,108.28	1,396.22	1,743.06	
3,976.21	321.88	3,328.44	3,540.91	1,439.84	1,707.86	
3,252.65	100,749.13	...	...	...
Prohibition Unit	8,264.68	6,964.30	6,308.86	5,804.59	4,764.68	
Employees detailed	7,657.82	8,786.85	9,715.66	7,922.81	4,945.32	
Miscellaneous engraving, services, and material.....	9,817.89	12,993.77				
Total	\$1,773,951.32	\$1,715,501.08	\$1,950,942.67	\$1,745,869.36	\$1,481,012.53	\$1,485,878.81
Reimbursed to the United States:						
Comptroller of the Currency.....	\$55,417.00	\$54,473.00	\$22,201.73	\$55,122.00	\$62,923.87	\$43,999.78
1,525,024.07	1,256,072.61	1,190,358.27	1,400,462.74	1,535,729.27	1,424,703.91	
118,914.01	61,168.49	47,297.20	83,077.70	106,072.29	39,933.91	
11,536.50	6,305.78	62,451.95	28,198.12	48,064.20	59,331.68	
11,125.89	14,903.80	14,559.56	20,651.65	8,648.85	15,245.53	
Employees detailed .....	...	...	380.35	343.43	1,079.26	
Miscellaneous engraving, services, and material.....	4,959.70	337.91	1,153.72			
Total	\$1,726,977.17	\$1,393,281.59	\$1,358,112.52	\$1,592,802.56	\$1,284,782.91	\$1,392,264.07
Grand total	\$10,106,320.28	\$9,401,925.68	\$10,041,457.46	\$10,483,674.68	\$10,415,742.42	\$9,734,996.41

APPENDIX 7

BIBLIOGRAPHY¹

EXPLANATORY NOTE

The bibliographies appended to the several monographs aim to list only those works which deal directly with the services to which they relate, their history, activities, organization, methods of business, problems, etc. They are intended primarily to meet the needs of those persons who desire to make a further study of the services from an administrative standpoint. They thus do not include the titles of publications of the services themselves except in so far as they treat of the services, their work and problems. Nor do they include books or articles dealing merely with technical features other than administrative of the work of the services. In a few cases explanatory notes have been appended where it was thought they would aid in making known the character or value of the publication to which they relate.

After the completion of the series, the bibliographies may be assembled and separately published as a bibliography of the Administrative Branch of the National Government.

- Bayer, J. Destroying 300 millions in paper money. (In *Scientific American*, May 4, 1912, new series, v. 106: 396)
- Brigham, W. E. Treasury's tribute of a million a year to organized labor. (In *Independent*, Nov. 24, 1910, v. 69: 1148-51)
- Claudy, C. H. Making and destroying paper money. (In *Scientific American* supplement, Sept. 28, 1918, v. 86: 200-02)
- Mechanical bill counter for the United States treasury. (In *Scientific American*, Dec. 14, 1912, New series, v. 107: 508)
- Facts relating to the engraving and printing of government issues. Washington, 1874. 25 p.
- Gannaway, T. D. Government's money laundry. (In *Scientific American* supplement, Nov. 5, 1910, v. 70: 298)

¹ Compiled by Sophy H. Powell.

- Glover, J. M. Bureau of Engraving and printing. Letters . . . on expenditures and management of Bureau of Engraving and printing. . . . 1879. 23 p.
- Letter . . . showing actual cost of work and the insecurity of the present method of doing it in the Bureau of Engraving and printing. 1879. 19 p.
- Holgate, C. E. Money and money making machinery. (In *Scientific American* supplement, Sept. 12, 1908, v. 66: 168-70)
- Irish, O. H. Letter . . . relative to letters of Hon. John M. Glover . . . 1879. 18 p.
- A defense of the conduct of the Bureau of Engraving and printing.
- Laundering paper currency. (In *Scientific American*, June 8, 1912, new series v. 106: 520)
- Meredith, W. M. Making of government securities. 1904. 8 p.
- Simpich, Frederick. This paper money business. (In Saturday evening post, Feb. 23, 1924, v. 196: 18-19)
- Some facts concerning the engraving and printing of national bank notes, bonds and other goverment securities. 1877. 12 p.
- U. S. Budget bureau.* Discrepancies in paper accounts between Secretary of Treasury and Bureau of Engraving and printing, supplemental estimates of appropriation for Department of agriculture, fiscal year 1923, to adjust losses shown to have occurred to Government on account of discrepancies existing on Apr. 8, 1922, in paper accounts between office of Secretary of treasury and Bureau of Engraving and printing. 1923. 8 p. (67th Cong. Senate doc. 335) Serial 8171
- Limitation as to number of delivered sheets of checks, drafts, etc., proposed legislation modifying limitation for fiscal year 1922 as to number of delivered sheets of checks, drafts and miscellaneous work in Bureau of Engraving and printing. 1922. 2 p. (67th Cong. House doc. 158) Serial 8105
- *Congress. House. Bureau of Engraving and printing investigating committee.* . . . Report and testimony. 1899. 2 pts. (55th Cong., 3d sess. Senate doc. 109, 2 pts.) Serial 3734
- *Committee on appropriations.* Bureau of Engraving and printing, hearings . . . 1918. . . . 1917. 46 p.
- Statements of J. E. Ralph; extract from hearings on Sundry civil appropriation bill, 1917. 1916. 29 p.
- Sundry civil bill, 1915, extract from hearings . . . [relative to Bureau of Engraving and printing] 1914. 60 p.
- Sundry civil bill, 1918, supplement to hearings . . . employees of Bureau of Engraving and printing, 1917. 42 p.

- — — *Committee on banking and currency.* Bank note engraving and printing. Petitions and review of testimony . . . with appendix. 1875. 54 p.
In the library of the Superintendent of documents, Washington, D. C.
- — — *Committee on Engraving and printing.* Engraving and printing government issues. Report [to accompany H. R. 1808] Report. 1878. 4 p. (45th Cong., 2d sess. House rept. 906) Serial 1826
- — — *Committee on expenditures in the Treasury department.* Bureau of Engraving and printing. Testimony. . . . 1877. 30 p. (44th Cong. House misc. doc. 43) Serial 1762
- — — *Irregularities in the Bureau of Engraving and printing.* Hearings. . . . 1916. 29 p.
- — — *Printing and engraving bureau.* Testimony. . . . 1876. 104 p. (44th Cong., 1st sess. House misc. doc. 188) Serial 1707
- — — *Committee on military affairs.* Engineer officer as director of Bureau of Engraving and printing, report to accompany S. J. Res. 105 [authorizing President to detail officer of Corps of Engineers as director of Bureau of Engraving and printing]. . . . 1924. 2 p. (68th Cong. House rept. 606) Serial 8228
- — — *Committee on printing.* Power presses. Hearing . . . on H. R. 9725, to prescribe method of printing Government securities and other printed paper executed by Bureau of Engraving and printing. 1922. 12 p.
- — — *Select committee to investigate charges against Treasury dept.* . . . Treasury department . . . Report . . . 1864. 416 p. (38th Cong., 1st sess. House rept. 140) Serial 1207
- — — *Senate. Committee on appropriations.* Further urgent deficiency bill 1916, hearings on H. R. 9416 making appropriations to supply further deficiencies in appropriations . . . for engraving and printing. 1916. 19 p.
- — — *Committee on finance.* Report [to accompany H. R. 9623] on plate printing, hand versus steam . . . 1889. 437 p. (50th Cong., 2d sess. Senate rept. 2604) Serial 2618 (Also printed as Treasury dept. doc. 1200)
- — — *Committee on printing.* Hand roller versus power presses. Hearing . . . on S. 4239. . . . 1912. 190 p.
- — *Engraving and printing bureau.* Annual report of the director [or chief]. 1870-date.
- — Communication from custodian of dies, rolls and plates, in relation to increase of salaries of custodian and his force. 1899. 4 p. (56th Cong., 1st sess. House doc. 124) Serial 3959

BIBLIOGRAPHY

103

— — — Communication from custodian of dies, rolls and plates, relative to classification and salaries of distributorers of stock. 1907. 2 p. (59th Cong., 2d sess. Senate doc. 353)

Serial 5072

— — — Concluding argument of Edward McPherson, Chief of Bureau of Engraving and printing on H. R. bill no. 1808. 1878. 16 p.

Early difficulties in administration.

— — — Customs stamps, paragraph of legislation for inclusion in pending deficiency bill, increasing number of sheets of customs stamps to be delivered by Bureau of Engraving and printing. 1921. 2 p. (66th Cong. Senate doc. 383) Serial 7794

— — — Digest of laws relating to Bureau, 1909. 111 p.

(Treasury dept. doc. 2553)

— — — Historical sketch of Bureau of Engraving and printing. 1921. 30 p.

— — — Increase of pay . . . estimate of appropriation to provide increase of pay of female operatives, printer's assistants, and skilled helpers employed by Bureau of Engraving and printing . . . 1918. 2 p. (65th Cong. House doc. 1148) Serial 7448

— — — Instructions relative to teaching of printer's assistants during probationary period. 1908. 4 p.

Reprints in 1911, 1914 and 1917.

— — — Plate printing by steam presses . . . 1882. 5 p. 47th Cong., 1st sess. House Ex. doc. 199) Serial 2031

— — — Plate printing by steam-power presses. 1882. 35 p. (47th Cong., 1st sess. House Ex. doc. 224) Serial 2031

— — — Regulations governing watch force in Bureau of Engraving and printing. 1914. 7 p.

— — — Same. 1918. 7 p.

— — — Same. 1922. 5 p.

— — — Same. 1925. 5 p.

— — — Reply of the Bureau of Engraving and printing to the New York bank note companies. . . . 1874. 29 p.

— — — Report of chief, 1863-date.

Included also in reports of Secretary of Treasury. First reports rare or non-existent. Library of Superintendent of documents has them from 1872-date.

— — — . . . Report . . . relative to the use and cost of hand and steam presses in that Bureau. 1888. 3 p. (50th Cong., 1st sess. House Ex. doc. 210) Serial 2558

- — — Rules and regulations of Bureau of Engraving and printing covering its organization, accountability for values and methods of business. 1880. 83 p.
- (Treas. dept. doc. 27)
- — — Statement of director relative to condition of service in bureau. 1899. (In Senate doc. 109, pt. 1: 36-56, 55th Cong., 3d sess.) Serial 3734
- — — *National currency bureau.* Report to the Secretary of the Treasury from first division National currency bureau, showing its origin, growth and present condition. . . . 1864. 165 p.
- This organization immediately preceded the Bureau of Engraving and printing.
- — — *Post office department.* Arrangement between Department and bureau for furnishing adhesive postage stamps during 4 years beginning July 1, 1898. (In Third assistant postmaster-general, Report, 1898: 58-60)
- — — *President* (Coolidge). Executive order, removing certain officers of Bureau of Engraving and printing, filling vacancies by appointment and abolishing certain offices and creating other offices, in lieu thereof, for reorganization of bureau, 1922. 1 p.
- (No. 3657)
- — — Secretary of the Treasury. Report on Engraving and printing bureau. 1869. 42 p. (45th Cong., 3d sess. H. Ex. doc. 45) Serial 1858
- — — *Committee of investigation on Bureau of Engraving and printing.* Report. 1877. 67 p.
- — — — Same. Supplement. 1877. 10 p.
- — — *Treasurer of United States.* Estimate of appropriation . . . required by Office of Treasurer of United States, national currency, reimbursable, this amount to be reimbursed by national and Federal reserve banks [for pay of employees detailed from Engraving and printing bureau] 1919. 2 p. (66th Cong. House doc. 192) Serial 7645
- — — *Treasury dept.* Compensation of certain employees [so as to transfer custody of dies, rolls, plates, etc., to Bureau of Engraving and printing] 1914. 2 p. (63d Cong. House doc. 881) Serial 6758
- — — Employees detailed for clerical work in Bureau of Engraving and printing . . . 1920. 2 p. (66th Cong. House doc. 543) Serial 7770
- — — Employees [of Bureau of Engraving and printing detailed for clerical work]. 1918. 2 p. (65th Cong. House doc. 780) Serial 7447

- — Employees receiving increased compensation, Bureau of Engraving and printing . . . who are detailed for duty in connection with clerical work of bureau. 1918. 2 p. (65th Cong. House doc. 1565) Serial 7584
- — Letter from the Secretary of the Treasury to the President of the United States with respect to a report submitted to the attorney general . . . regarding alleged duplications of the public debt. 1924. 186 p.
- — [Rules and regulations governing] Bureau of Engraving and printing . . . 1907. (In Senate doc. 399, pt. I:225-33, 59th Cong., 2d sess. v. 25) Serial 5092
- — Special regulations to government employees in Bureau [of Engraving and printing]. . . . 1897. 1 p.
- — Supplemental estimate for Bureau of Engraving and printing . . . also draft of proposed legislation affecting an existing appropriation. 1925. 4 p. (68th Cong. House doc. 614) Serial 8445

INDEX

- Accounting Division, organization of, 71-72; work of, 48.
- Activities, classification of, 78-79; discussion of, 16-31.
- Appropriation and Paper Control Records Section, organization of, 71; work of, 48.
- Appropriations, act making, 91-92; expenditures from, 96-99; repayments to, 8-10; use of, 87.
- Armored Truck Guards, organization of, 73; work of, 51.
- Assignment Section, organization of, 72; work of, 49.
- Audits, extent of, 33.
- Back Examining Section, organization of, 64; work of, 41.
- Banding Section, organization of, 66; work of, 43.
- Bank notes. *See* National bank notes; Federal Reserve notes.
- Banks. *See* Federal Reserve bank notes; National bank notes; Federal farm loan bonds; Joint stock land bank bonds; Federal intermediate credit bank debentures.
- Bindery Section, organization of, 69; work of, 46.
- Bonds. *See* United States bonds; Federal farm loan bonds; Joint stock land bank bonds; Certificates of indebtedness; Treasury notes; Debentures of federal intermediate credit banks.
- Bonds and Certificates Section, organization of, 70; work of, 48.
- Book Section, organization of, 67; work of, 44.
- Building, description of, 81; erection of, 5, 13.
- Buildings and Grounds Division, organization of, 73-74; work of, 51.
- Cafeteria, operation of, 54.
- Carpenter and Paint Shop Section, organization of, 76; work of, 53.
- Certificates of indebtedness, engraving and printing of, 22-24.
- Char Force Section, organization of, 74.
- Chauffeurs Section, organization of, 77.
- Checks, engraving and printing of, 30-31, 44.
- Classification Act, provisions of, 56-57.
- Clerical Section, Building and Grounds Division, organization of, 73; work of, 52.
- Clerical Section, Engineering and Machine Division, organization of, 75; work of, 53.
- Clerical Service, Engraving Division, organization of, 59; work of, 34.
- Clerical Service, Examining Division, organization of, 64; work of, 41.
- Clerical Section, Federal Reserve Vault Division, organization of, 75.
- Clerical Section, Garage Division, organization of, 77.
- Clerical Section, Hygienic Division, organization of, 73.
- Clerical Section, Ink Making Division, organization of, 70; work of, 47.
- Clerical Section, Numbering Division, organization of, 66; work of, 43.
- Clerical Section, Orders Division, organization of, 70; work of, 48.
- Clerical Section, Plate Vault Division, organization of, 74; work of, 52.
- Clerical Section, Postage Stamp Division, organization of, 67; work of, 44.

- Clerical Section, Press Register Division, organization of, 77.
- Clerical Section, Surface Printing Division, organization of, 68; work of, 45.
- Clerical Section, Wetting Division, organization of, 62; work of, 36.
- Coil Section, organization of, 67; work of, 44.
- Commissions, engraving and printing of, 30-31.
- Compensation, fixing of, 56-57.
- Composing Section, organization of, 68; work of, 45.
- Cost Accounts Section, organization of, 71; work of, 48.
- Counting of sheets, work of, 32.
- Credit banks, federal intermediate, engraving and printing debentures of, 24-26; law relating to, 91.
- Currency, engraving and printing of, 17-22, 34-35, 37-38; maceration of, 31.
- Currency Overprinting Section, organization of, 69; work of, 46.
- Currency Section, Orders Division, organization of, 70; work of, 48.
- Custodians Section, organization of, 77.
- Debentures of federal intermediate credit banks, engraving and printing of, 24-26; law relating to, 91.
- Designing Section, organization of, 59; work of, 34.
- Dies, inventory of, 33.
- Disbursing Division, organization of, 73; work of, 50-51.
- Distinctive paper, use of, 3, 17-18.
- Dressing Room Attendants Section, organization of, 74.
- Drying Section, organization of, 64; work of, 41.
- Electrical Shop Section, organization of, 75; work of, 53.
- Electrolytic Section, organization of, 61; work of, 35.
- Elevators Operators Section, organization of, 74.
- Employees, number of, 56.
- Employment Section, organization of, 72; work of, 49.
- Engineers' and Firemen's Section, organization of, 76; work of, 53.
- Engineering and Machine Division, organization of, 75-77; work of, 53.
- Engraved stock, inventory of, 33.
- Engraving, process of, 34-36.
- Engraving Division, organization of, 59-62; work of, 33-36.
- Engraving Section, organization of, 59-60; work of, 34.
- Envelopes, stamped, printing of, 16-17.
- Examining Division, organization of, 64-66; work of, 40-42.
- Expenditures, statement of, 96-99.
- Face Examining Section, organization of, 65; work of, 41.
- Farm loan obligations, engraving and printing of, 24-26; laws relating to, 90-91.
- Federal farm loan bonds, engraving and printing of, 24-26; law relating to, 90.
- Federal intermediate credit bank debentures, engraving and printing of, 24-26; law relating to, 91.
- Federal Reserve bank notes, engraving and printing of, 17, 22.
- Federal Reserve notes, engraving and printing of, 14, 21-22, 34-35, 37-38; laws relating to engraving, etc., of, 89-90; storage of, 22.
- Federal Reserve Vault Division, organization of, 75; work of, 52.
- Files Section, organization of, 72; work of, 49.
- Financial statements, 93-99.
- First Division National Currency Bureau, creation of, 4.
- Flat-bed Power Printing Sections, Plate Printing Division, organization of, 63; work of, 40.
- Flat-bed printing, extent of, 45.
- Flat-Bed Printing Section, Surface Division, organization of, 68; work of, 45.
- Funds, *See* Appropriations.
- Garage Division, organization of, 77; work of, 54.
- Gardener Section, organization of, 74.

- General Supply Committee, work of, 49.
Gold certificates, engraving and printing of, 19, 34-35, 37-38.
Government Fuel Yard, work of, 49.
Guides Section, organization of, 73; work of, 51.
Gumming and Perforating Section, organization of, 67; work of, 44.
Hammering Section, organization of, 62; work of, 36.
Hand roller printing, process of, 37-39; use of, 6-7, 10-13.
Hand Roller Section, organization of, 63; work of, 40.
Hand Wetting Section, organization of, 62; work of, 37.
Hardening Section, organization of, 61; work of, 34, 35.
History, discussion of, 1-15.
Holidays, law relating to payment for, 87.
Hydraulic Pressing Section, organization of, 65-66; work of, 42.
Hygienic Division, organization of, 73; work of, 51.
Indebtedness, certificates of, engraving and printing of, 22-24.
Injury Records Section, organization of, 72; work of, 48.
Ink and Rag Distribution Section, organization of, 64; work of, 40.
Ink Grinding Section, organization of, 70; work of, 47.
Ink-Making Division, organization of, 70; work of, 47.
Ink-Mixing Section, organization of, 70; work of, 47.
Insular governments, engraving and printing for, 30.
Intermediate credit banks, engraving and printing debentures of, 24-26; law relating to, 91.
Internal revenue stamps, engraving and printing of, 4, 5, 29-30, 44; storage of, 30.
Inventories, work of, 33.
Joint stock land bank bonds, engraving and printing of, 24-26; law relating to, 90.
Labor Section, Buildings and Grounds Division, organization of, 74.
Laborers Section, Engineering and Machine Division, organization of, 77; work of, 53.
Land bank obligations, engraving and printing, 24-26; law relating to, 90.
Laws, compilation of, 83-92; index to, 82-83.
Leave of absence, law relating to, 87.
Liquor permits and prescriptions, engraving and printing of, 30-31, 44.
Maceration of retired currency, law relating to, 85; work of, 31.
Macerator Section, organization of, 77; work of, 53.
Machine Shop Section, organization of, 75; work of, 53.
Machine Wetting Section, organization of, 62; work of, 36.
Machinists Section, Engraving Division, organization of, 61; work of, 35.
Mail Section, organization of, 72; work of, 49.
Mails and Files Division, organization of, 72; work of, 49.
Masonry Force Section, organization of, 76; work of, 53.
Mechanical Expert and Designer's Office, organization of, 77; work of, 55.
Medical officer, work of, 51.
Miscellaneous Section, Orders Division, organization of, 71; work of, 48.
Money order printing, execution of, 16-17; law relating to estimates for, 86.
National bank notes, engraving and printing of, 3, 4, 5, 20-21, 34-35, 37-38; law relating to printing, etc., of, 83-84, 85, 86; number of, 44.
National currency. *See* United States notes.
National Currency Bureau, creation of, 4.

- Notes. *See* National bank notes; Federal reserve notes; Gold certificates; Silver certificates; United States notes.
- Numbering Division, organization of, 66; work of, 42-43.
- Numbering, Sealing, Examining, and Separating Section, organization of, 66; work of, 43.
- Offset Printing Section, organization of, 68-69; work of, 45-46.
- Orders Division, organization of, 70-71; work of, 48.
- Organization, discussion of, 32-55; outline of, 58-77.
- Packing Section, Numbering Division, organization of, 66; work of, 43.
- Packing and Shipping Section, Postage Stamp Division, organization of, 68; work of, 44.
- Pantograph Section, organization of, 62; work of, 36.
- Paper, control over, 32.
- Paper, distinctive, use of, 3, 17-18.
- Payrolls Section, organization of, 71; work of, 48.
- Perforating, work of, 44.
- Personnel Division, organization of, 72; work of, 48.
- Personnel system, discussion of, 56-57.
- Philippine currency, engraving and printing of, 30; numbering of, 44.
- Philippine Islands, engraving and printing for, 30.
- Photolithographic Section, organization of, 61; work of, 35.
- Planning Unit, organization of, 77; work of, 54.
- Plant, description of, 81. *See also* Building.
- Plate Cleaning Section, organization of, 60; work of, 35.
- Plate Haulers Section, organization of, 62; work of, 36.
- Plate Printing Division, organization of, 63-64; work of, 37-40.
- Plate Vault Division, organization of, 74-75; work of, 52.
- Plater Pressing Section, organization of, 65; work of, 42.
- Plates, inventory of, 33; making of, 34-36.
- Plumbing Shop, organization of, 76; work of, 53.
- Porto Rico, engraving and printing for, 30.
- Portraits, engraving of, 8; law relating to use, etc., of, 83, 86, 88, 90, 91.
- Postage Stamp Division, organization of, 66-68; work of, 43-44.
- Postage stamps, manufacture of, 7, 26-29, 34, 38, 43-44; laws relating to, 88; storage of, 28.
- Postal cards, printing of, 16.
- Power, generation of, 81.
- Power press printing, discussion of, 6-7, 10-14; law relating to, 91; process of, 37-39.
- Press Cleaners Section, organization of, 74.
- Press Register Division, organization of, 77; work of, 54.
- Presses, work of, 37-39.
- Presses, power. *See* Power press printing.
- Pressing, work of, 41, 42.
- Printing Division Office, organization of, 63; work of, 40.
- Printing, intaglio plate. *See* Power press printing.
- Printing, Offset. *See* Offset Printing section.
- Printing, relief plate. *See* Surface Printing Division.
- Private work, restrictions on, 85.
- Proving Section, organization of, 61; work of, 36.
- Publications, discussion of, 80.
- Purchase Section, organization of, 72; work of, 49-50.
- Purchase, Storage, and Issue Division, organization of, 72-73; work of, 49.
- Purchases, table showing, 50.
- Rag Laundry Section, organization of 76; work of, 53.
- Revenue Finishing Section, organization of, 69; work of, 46.

- Roller-Making Section, organization of, 69; work of, 46.
- Rolls, inventory of, 33.
- Rotary Perforating Section, organization of, 67; work of, 44.
- Rotary presses, work of, 38.
- Rotary Printing Sections, organization of, 63; work of, 40.
- Salaries, fixing of, 56-57.
- Securities, audit of, 33.
- Secretary of the Treasury, powers of, 32.
- Silver certificates, engraving and printing of, 19-20, 34-35, 37-38.
- Sizing Section, organization of, 65; work of, 41.
- Stamped envelopes, printing of, 16-17.
- Stamps. *See* Internal revenue stamps; Postage stamps.
- Stamps Section, Orders Division, organization of, 71; work of, 48.
- Steel Stock Cage Section, organization of, 62; work of, 36.
- Stock and Distribution Section, Wetting Division, organization of, 62-63; work of, 36.
- Stock Control Accounts Section, organization of, 72; work of, 18.
- Stock Distributors Section, organization of, 62; work of, 36.
- Stock Exchange Section, organization of, 66; work of, 43.
- Storage and Issue Section, Federal Reserve Vault Division, organization of, 75.
- Storage and Issue Section, Plate Vault Division, organization of, 75; work of, 52.
- Storage and Issue Section, Purchase, Storage and Issue Division, organization of, 73; work of, 50.
- Supervisory Section, Accounting Division, organization of, 71; work of, 48.
- Surface Printing Division, organization of, 68-70; work of, 44-46.
- Telephone Switchboard Section, organization of, 74.
- Testing laboratory, organization of, 70; work of, 47.
- Textile Room, organization of, 63; work of, 40.
- Timekeeping Section, organization of, 71; work of, 48.
- Towel Laundry Section, organization of, 74.
- Transferring Section, organization of, 60; work of, 34.
- Transportation requests, engraving and printing of, 30-31.
- Treasury notes, engraving and printing of, 17, 22-24.
- Trimming Section, organization of, 65; work of, 42.
- Type-setting, work of, 45.
- United States bonds, engraving and printing of, 22-24.
- United States notes, engraving and printing of, 3, 5, 18-19, 34-35, 37-38; law relating to, 83.
- Vault and Delivery Section, Numbering Division, organization of, 66; work of, 43.
- Vault and Delivery Section, Surface Printing Division, organization of, 69-70; work of, 46.
- Vaults Section, Examining Division, organization of, 66; work of, 42.
- Visitors, number of, 51.
- Wages, fixing of, 57.
- Waste Paper Assorters Section, organization of, 74; work of, 52.
- Watch Division, organization of, 73; work of, 51.
- Watchmen Section, organization of, 73; work of, 51.
- Wet Counting and Tissue Separating Section, organization of, 64; work of, 41.
- Wetting Division, organization of, 62-63; work of, 36-37.

PUBLICATIONS OF THE BROOKINGS INSTITUTION

INSTITUTE FOR GOVERNMENT RESEARCH

(Published by The Johns Hopkins Press, Baltimore, Maryland.)

STUDIES IN ADMINISTRATION

The System of Financial Administration of Great Britain.

By W. F. Willoughby, W. W. Willoughby, and S. M. Lindsay. 378 pp.
(1917). Out of print.

The Budget: A Translation.

By René Stourm. 648 pp. \$4. (1917).

The Canadian Budgetary System.

By H. C. Villard and W. W. Willoughby. 390 pp. \$3. (1918).

The Problem of a National Budget.

By W. F. Willoughby. 234 pp. (1918). Out of print.

The National Budget System, with Suggestions for Its Improvement.

By W. F. Willoughby. 359 pp. \$3. (1927).

The Movement for Budgetary Reform in the States.

By W. F. Willoughby. 266 pp. \$3. (1918).

The Legal Status and Functions of the General Accounting Office.

By W. F. Willoughby. 204 pp. \$3. (1927).

Manual of Accounting and Reporting for the Operating Services of the National Government.

By Henry P. Seidemann. 421 pp. \$5. (1926).

Manual of Accounting, Reporting, and Business Procedure for the Ter- ritorial Government of Hawaii.

By Henry P. Seidemann. 598 pp. \$5. (1928).

The Development of National Administrative Organization in the United States.

By Lloyd M. Short. 531 pp. \$5. (1923).

The Reorganization of the Administrative Branch of the National Government.

By W. F. Willoughby. 314 pp. (1922). Out of print.

The Federal Service: A Study of the System of Personnel Administra- tion of the United States Government.

By Lewis Mayers. 624 pp. \$5. (1922).

The Statistical Work of the National Government.

By Laurence F. Schmeckebier. 590 pp. \$5. (1925).

The National Government and Public Health.

By James A. Tobey. 441 pp. \$3. (1926).

The Department of Justice of the United States.

By Albert Langeluttig. 334 pp. \$3. (1927).

The Problem of Indian Administration.

By Lewis Merriam and Associates. 894 pp. \$5. (1928).

LIST OF PUBLICATIONS

- The Development of Government Forest Control in the United States.**
By Jenks Cameron. 480 pp. \$3. (1928).
- Organized Efforts for the Improvement of Methods of Administration in the United States.**
By Gustavus A. Weber. 408 pp. \$3. (1919).
- Teachers' Pension Systems in the United States.**
By Paul Studensky. 474 pp. \$3. (1921).
- The District of Columbia; its Government and Administration.**
By Laurence F. Schmeckebier. 963 pp. \$5. (1928).
- The Government and Administration of Germany.**
By Frederick F. Blachly and Miriam E. Oatman. 784 pp. \$5. (1928).
- Group Representation before Congress.**
By E. Pendleton Herring. 327 pp. \$3. (1929).

PRINCIPLES OF ADMINISTRATION

- Principles of Public Administration.**
By W. F. Willoughby. 742 pp. \$5. (1927).
- Principles of Judicial Administration.**
By W. F. Willoughby (In Press).
- Principles of Government Accounting and Reporting.**
By Francis Oakey. 582 pp. \$5. (1921).
- Principles of Government Purchasing.**
By Arthur G. Thomas. 290 pp. \$3. (1919).
- Principles of Public Personnel Administration.**
By Arthur W. Procter. 256 pp. \$3. (1921).
- Principles Governing the Retirement of Public Employees.**
By Lewis Meriam. 508 pp. \$3. (1918).

SERVICE MONOGRAPHS OF THE UNITED STATES GOVERNMENT

1. Geological Survey. 174 pp. (1918). Out of print.
2. Reclamation Service. 100 pp. (1919). Out of print.
3. Bureau of Mines. 174 pp. \$1. (1922).
4. Alaskan Engineering Commission. 134 pp. \$1. (1922).
5. Tariff Commission. 84 pp. \$1. (1922).
6. Federal Board for Vocational Education. 86 pp. \$1. (1922).
7. Federal Trade Commission. 92 pp. \$1. (1922).
8. Steamboat-Inspection Service. 142 pp. \$1. (1922).
9. Weather Bureau. 100 pp. \$1. (1922).
10. Public Health Service. 312 pp. \$2. (1923).
11. National Park Service. 184 pp. \$1. (1922).
12. Employees' Compensation Commission. 98 pp. \$1. (1922).
13. General Land Office. 236 pp. \$1.50. (1923).
14. Bureau of Education. 172 pp. \$1. (1923).
15. Bureau of Navigation. 136 pp. \$1. (1923).
16. Coast and Geodetic Survey. 120 pp. \$1. (1923).
17. Federal Power Commission. 138 pp. \$1. (1923).
18. Interstate Commerce Commission. 182 pp. \$1. (1923).
19. Railroad Labor Board. 96 pp. \$1. (1923).
20. Division of Conciliation. 48 pp. \$1. (1923).

LIST OF PUBLICATIONS

21. Children's Bureau. 95 pp. \$1. (1925).
22. Women's Bureau. 44 pp. \$1. (1923).
23. Office of the Supervising Architect. 150 pp. \$1. (1923).
24. Bureau of Pensions. 150 pp. \$1. (1923).
25. Bureau of Internal Revenue. 283 pp. 1.50. (1923).
26. Bureau of Public Roads. 134 pp. \$1. (1923).
27. Office of the Chief of Engineers. 178 pp. \$1. (1923).
28. United States Employment Service. 142 pp. \$1. (1923).
29. Bureau of Foreign and Domestic Commerce. 192 pp. \$1. (1924).
30. Bureau of Immigration. 260 pp. \$1.50. (1924).
31. Patent Office. 139 pp. \$1. (1924).
32. Office of Experiment Stations. 190 pp. \$1. (1924).
33. Customs Service. 203 pp. \$1.50. (1924).
34. Federal Farm Loan Bureau. 171 pp. \$1. (1924).
35. Bureau of Standards. 314 pp. \$2. (1925).
36. Government Printing Office. 155 pp. \$1. (1925).
37. Bureau of the Mint. 102 pp. \$1. (1926).
38. Office of the Comptroller of the Currency. 96 pp. \$1. (1926).
39. Naval Observatory. 113 pp. \$1. (1926).
40. Lighthouse Service. 170 pp. \$1. (1926).
41. Bureau of Animal Industry. 202 pp. \$1.50. (1927).
42. Hydrographic Office. 124 pp. \$1. (1926).
43. Bureau of Naturalization. 120 pp. \$1. (1926).
44. Panama Canal. 430 pp. \$2.50. (1927).
45. Medical Department of the Army. 173 pp. \$1.50. (1927).
46. General Accounting Office. 227 pp. \$1.50. (1927).
47. Bureau of Plant Industry. 133 pp. \$1. (1927).
48. Office of Indian Affairs. 605 pp. \$3. (1927).
49. United States Civil Service Commission. 165 pp. \$1.50. (1928).
50. Food, Drug, and Insecticide Administration. 146 pp. \$1.50. (1928).
51. Coast Guard. (In Press).
52. Bureau of Chemistry and Soils. 231 pp. \$1.50. (1928).
53. Bureau of the Census. (In Press).
54. Bureau of Biological Survey. 349 pp. \$2. (1929).
55. Bureau of Dairy Industry. 83 pp. \$1.50. (1929).
56. Bureau of Engraving and Printing. 121 pp. \$1.50. (1929).

PUBLICATIONS OF THE BROOKINGS INSTITUTION

INSTITUTE OF ECONOMICS

(Published by The Macmillan Company, New York, except for volumes starred, which are published by the McGraw-Hill Company, New York.)

*Germany's Capacity to Pay.

By Harold G. Moulton and Constantine E. McGuire. 384 pp. \$2.50. (1923).

*Russian Debts and Russian Reconstruction.

By Leo Pasvolsky and Harold G. Moulton. 247 pp. \$2.50. (1924).

*The Reparation Plan.

By Harold G. Moulton. 325 pp. \$2.50. (1924).

The French Debt Problem.

By Harold G. Moulton and Cleona Lewis. 459 pp. \$2. (1925).

The Ruhr-Lorraine Industrial Problem.

By Guy Greer. 328 pp. \$2.50. (1925).

World War Debt Settlements.

By Harold G. Moulton and Leo Pasvolsky. 448 pp. \$2. (1926).

Italy's International Economic Position.

By Constantine E. McGuire. 588 pp. \$3. (1926).

The International Accounts.

By Cleona Lewis. 170 pp. \$2. (1927).

American Loans to Germany.

By Robert R. Kuczynski. 378 pp. \$3. (1927).

Economic Nationalism of the Danubian States.

By Leo Pasvolsky. 609 pp. \$3. (1928).

*Making the Tariff in the United States.

By Thomas Walker Page. 281 pp. \$2.50. (1924).

*Sugar in Relation to the Tariff.

By Philip G. Wright. 312 pp. \$2.50. (1924).

The Tariff on Wool.

By Mark A. Smith. 350 pp. \$2.50. (1926).

The Cattle Industry and the Tariff.

By Lynn Ramsay Edminster. 331 pp. \$2.50. (1926).

The Tariff on Animal and Vegetable Oils.

By Philip G. Wright. 347 pp. \$2.50. (1928).

*American Agriculture and the European Market.

By Edwin G. Nourse. 333 pp. \$2.50. (1924).

The Federal Intermediate Credit System.

By Claude L. Benner. 375 pp. \$2.50. (1926).

Financing the Livestock Industry.

By Forrest M. Larmer. 327 pp. \$2.50. (1926).

Industrial Prosperity and the Farmer.

By Russell C. Engberg. 286 pp. \$2.50. (1927).

LIST OF PUBLICATIONS

The Legal Status of Agricultural Coöperation.

By Edwin G. Nourse. 555 pp. \$3. (1927).

The Mexican Agrarian Revolution.

By Frank Tannenbaum. (In Press). \$2.50.

***Miners' Wages and the Cost of Coal.**

By Isador Lubin. 316 pp. \$2.50. (1924).

The Case of Bituminous Coal.

By Walton H. Hamilton and Helen R. Wright. 310 pp. \$2.50. (1925).

The Coal Miners' Struggle for Industrial Status.

By Arthur E. Suffern. 462 pp. \$2.50. (1926).

Workers' Health and Safety: A Statistical Program.

By Robert Morse Woodbury. 207 pp. \$2.50. (1927).

The British Coal Dilemma.

By Isador Lubin and Helen Everett. 370 pp. \$2.50. (1927).

A Way of Order for Bituminous Coal.

By Walton H. Hamilton and Helen R. Wright. 365 pp. \$2.50. (1928).

Labor and Internationalism.

By Lewis L. Lorwin. (In Press). \$2.50.

Interest Rates and Stock Speculation.

By Richard N. Owens and Charles O. Hardy. 197 pp. \$2. (1925).

Tax-exempt Securities and the Surtax.

By Charles O. Hardy. 216 pp. \$2. (1926).

The Balance of Births and Deaths.

By Robert R. Kuczynski. 140 pp. \$2. (1928).

DELHI UNIVERSITY LIBRARY

Cl. No.

Ac. No.

Date of release for loan

This book should be returned on or before the date last stamped below. A fine of one anna will be charged for each day the book is kept overtime.

**DELHI
UNIVERSITY
LIBRARY**

Books drawn from the Library by Members of the Court, Members of the Teaching Staffs of the University constituent Colleges may be retained not longer than **one month**.

Books drawn by Students on Roll, and by others who have obtained special permission may be retained not longer than **two weeks**.

Numbers of periodicals when issued are due back one week after being taken out.

A fine of one anna will be charged each day for each volume or number that is overdue.

Borrowers will be held strictly responsible for any damage done to books while in their possession.